589.33
El59s
Biology
11 May 17 E Davis

[*Extract from Journal of Mycology, Vol. II, No. 3, March, 1886.*]

SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.*

BY J. B. ELLIS AND B. M. EVERHART.

FAMILY HYPOCREACEÆ, DE NOTARIS.

Simple, or compound. Perithecia subcarnose, or ceraceo-membranaceous, never carbonaceous, bright colored, opening by a subcentral ostiolum. Stroma, when present, soft, waxy-carrose, or occasionally cottony. Sacc. Syll., II, p. 447.

SUB-FAMILY I. HYPOCREOIDEÆ.

GEN. I. CLAVICEPS, TUL.

1. CLAVICEPS PURPUREA (Fr.), Tul. Ann. Sci. Nat., 1853, XX, Tab. 3.

The ascigerous form of this species, which grows from the Sclerotium (ergot), often found in heads of rye, and in various other species of the order *Graminæ*, has not, so far as we are aware, been met with in this country, through its *Sclerotium*, or condensed mycelium (*Sclerotium clavus*, D. C.), is very common.

This species is characterized as follows: Heads sphæroid, tuberculose from the prominent perithecia, borne on short fluxuous stems; asci narrow, linear, 8-spored; sporidia filiform, continuous, attenuated toward each end, hyaline, 50—76 μ long. *Fusarium heterosporum*, Nees. and *Oidium abortifaciens*, B. and Br. are considered to be the conidia of this species.

2. CLAVICEPS MICROCEPHALA (Wallr.), which differs from C. purpurea, principally, in its smaller size (stem filiform, 10—16 millim. long, head globose, rufous, .05 millim.), grows from the ergot of *Phragmites communis*, which, however, also produces the first-mentioned species. Both these may be raised by cultivation of their sclerotia, which may be lightly covered with earth, kept properly moistened in a flower pot.

GEN. II, CORDYCEPS, FRIES.—Stroma vertical, entomogenous, or occasionally mycogenous, clavate. Sporidia filiform, hyaline, separating into joints.

A. ENTOMOGENÆ.

X. *Stroma simple, head rounded, or elliptical.*

3. CORDYCEPS ENTOMORRHIZA (Dicks.)

Carnose; head subglobose, fuscous; stipe slender, simple or double, subcompressed, 2 inches long, and over; asci cylindrical; sporidia filiform, hyaline, breaking up into cylindrical joints, or sections, 7—8 μ long.

Growing from larvæ of insects. Carolina (Ravenel).

* The arrangement here adopted is that of Cooke, in Grevillea, Vol. XII, p. 102.

Botany 29 8'16 Fitzpatrick 50
P 39655

4. CORDYCEPS ARMENIACA, B. & C. Journ. Linn., Soc., 1, p. 159. Tab. 1, fig. 1.

Apricot-colored, stipe flexuous, rather short, 8 millim. long; head subglobose, rather pale. roughened by the perithecia; asci elongated, subinflated at the apex; sporidia linear (?), immature.

On dung of birds, probably from the remains of insects eaten. Carolina (Ravenel).

XX. *Stroma furcate, or ramose.*

5. CORDYCEPS PALUSTRIS, Berk. & Br. Linn. Journ., l. c., fig. 5.

Carnose-suberose, dark, dirty flesh-colored, stipe cylindrical, bifid, or trifid above, 25—50 millim. long, including the clavate subcylindrical head, which is roughened by the projecting ostiola; sporidia filiform, separating into small ($1\frac{1}{2}$ ″) globose joints. On dead larvæ in damp ground. Carolina (Ravenel).

XXX. *Stroma simple, head elongated.*

6. CORDYCEPS STYLOPHORA, Berk. & Br. Linn. Journ., l. c., fig. 3.

Yellow; stipe slender, 12—18 millim. long, $\frac{1}{2}$ millim. thick; head much elongated, with the surface nearly smooth; perithecia immersed. On dead larvæ. Carolina (Ravenel).

The specimen in Ravenel's Fungi, Car., Exsicc., V, No. 49, has the slender stem a little over 2 cm. long, the ascigerous part occupying a medial position, cylindrical, and slightly enlarged, about 8 millim. long by 1 millim. thick, with a sterile, slender beak, about $\frac{1}{2}$ cm. long, being a prolongation of the stipe, but the specimen is apparently immature, being without asci or sporidia.

7. CORDYCEPS CLAVULATA, Schw. Syn., N. Am., 1155. On dead scale insects (Lecanium), on living branches of *Fraxinus* and *Prinus*, N. Y. (Peck). On branches of *Clethra*, Newfield, N. J.

From specimens collected by Prof. Peck, and distributed in de Thuemen's Mycotheca Universalis, No. 1258, we have drawn the following description: Stroma simple, clavate, about 3 x $\frac{1}{4}$ millim., consisting of a light cinereous stipe, surmounted by a black ovate, or elliptical head, about 1 millim. high and $\frac{1}{2}$ millim thick, roughened by the rounded prominent perithecia, which are of coarse cellular structure, and only imperfectly perforated above; asci subsessile, broadest in the middle, contracted above, and rounded at the apex, 80—95 x 8—10 ″; sporidia filiform, multiseptate, 40—70 x $1\frac{1}{2}$—2 ″, joints 3—5 ″ long.

In Sacc. Sylloge, II, p. 568, the species represented by the above specimens is made a synonym of *C. pistillariæformis*, B. & Br., but if the two species are the same, the name of Schweinitz has priority, and it is quite certain that the specimens in M. U., 1258, are the genuine *C. clavulata* Schw.

8. Cordyceps militaris (Linn.)

Growing from dead pupæ of moths buried just below the surface of the ground. Massachusetts (Farlow), Carolina (Ravenel), Pennsylvania (Everhart), New York (Peck), New Jersey (Ellis), California (Harkness). Wisconsin (Trelease) conidia.

Stromata solitary, or sometimes several, issuing usually from the head, but sometimes from the articulations of the pupa, orange-colored, 4—5 cm. high, including the elongated-clavate head, which is 1—1½ cm. long, and minutely tuberculose from the subconic, emergent, orange-red perithecia. Asci slender, 115—150 x 4—5 μ, containing eight slender filiform closely-jointed sporidia, nearly as long as the asci, and breaking up into minute (½—¾ μ), hyaline, subelliptical segments. The conidial stage (*Isaria farinosa*, Fr.), is often met with, and resembles a small white plume of about the same height as the ascigerous stroma, and more or less branched above.

9. Cordyceps Ravenelii, B. & C. Journ. Linn., Soc. I, p. 159, tab. 1, fig. 4. Growing from dead larvæ of the "June-beetle" (*Lachnosterna fusca*) and other larvæ (?), buried in the ground. Carolina (Ravenel), Iowa (Bessey), Pennsylvania (Everhart).

Stroma (stipe) elongated, flexuous, compressed and sulcate when dry, at first minutely tomentose, finally nearly glabrous, 5 inches or more high (see Riley, in American Entomologist, 1880), including the elongated-cylindrical head, which is roughened by the superficial, black, subhemispherical, large (175—200 μ) perithecia. Asci linear-cylindrical, 150—200 x 7—9 μ, slightly narrowed above and rounded at the apex, containing 8, filiform sporidia, nearly as long as the asci, about 2 μ thick, and breaking up into joints 3—5 μ long. The specimens in Rav., Fungi Car. Exsicc. IV, No. 28, are from 8—10 cm. high, the yellowish-brown stem about 2 millim. thick, enlarged above, in that part occupied by the perithecia, to about 3 μ thick; but the specimens are, no doubt, considerably smaller than when fresh.

Descriptions and good drawings of this and the two preceding species are given in Journ. N. Y. Microscop. Soc., Vol. I, p. 91 et seq., by Rev. J. L. Zabriskie.

10. Cordyceps acicularis, Rav. Linn. Journ., l. c., fig. 2. (*C. Caroliniensis*, B. & Rav., in Rav. Fungi. Car. Exsicc. IV, No. 29).

Fuscous; stipe slender, elongated; head cylindrical, with a long acuminate sterile apex; perithecia superficial, free; asci very long, flexuous; sporidia linear, breaking up into truncate segments about 5 μ long. On larvæ buried a little distance below the surface of the ground. Carolina (Ravenel).

We have copied the above description from Saccardo's Sylloge II, p. 574.

The specimens in Rav. Exsicc. have a filiform flexuous stem, yellowish-brown below, cinereous and attenuated above, 8—10 cm. high, and (in our copy) entirely sterile.

11. CORDYCEPS SUPERFICIALIS, Pk., 28th Rep. N. Y. State Mus., p. 70. Under hemlock trees on buried larvæ. Northville, N. Y. August. (Peck.)

"Slender, about 1 inch high, smooth, brown, the sterile apex gradually tapering to a point; perithecia crowded, superficial, subglobose, blackish-brown, sometimes collapsed, with a small, papilliform ostiolum; asci cylindrical; spores long, slender, filiform. Related to and intermediate between *C. Ravenelii* and *C. acicularis*. The stem of the plant is about equal in length to the club, or perithecia-bearing part The perithecia are more loosely placed at the extremities of the club, thereby giving it a subfusiform shape. The spores are more slender than those of *C. acicularis*, but the plant itself is less elongated and slender." We have seen no specimens, and copy the above from the report cited.

XXXX. *Perithecia scattered on the stroma, scarcely capitate.*

12. CORDYCEPS SPHINGUM, Tul. Sel. Carp., III. p. 12.

Growing from dead moths, of the genus *Sphinx*. Massachusetts (Farlow, in "List of Fungi found in the vicinity of Boston." Bull. Bussey Inst.)

Stromata arising from a thin pale-ochraceous crust, overspreading the matrix, very slender and rather rigid, scattered, 50 millim. long; springing mostly from the abdominal rings; perithecia seated on the crust itself, or on the lower or medial parts of the slender stromata, subsuperficial, sparingly cæspitose, or collected into a tolerably dense spike (densius in spicam digestis), narrow, ovate, $\frac{1}{2}$ millim. long, glabrous, carnose, pale reddish; asci very long, cylindrical, 4 μ thick; sporidia very narrow filiform. The conidial stage is *Isaria Sphingum*, Schw.

(To be continued.)

JOURNAL OF MYCOLOGY.

Vol. II. MANHATTAN, KANSAS, MAY, 1886. No. 5.

SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 31.)

B. MYCOGENÆ.

13. CORDYCEPS OPHIOGLOSSOIDES (Ehr.) Parasitic on *Elaphomyces granulatus* and *E. muricatus*. Massachusetts (Farlow), New Jersey (Ellis), Pennsylvania (Everhart).

Stromata solitary, rarely cæspitose, simple, or very rarely branched, flexuous, subcompressed, carnose, yellow within, 8—12 cm. high, 5—8 millim. thick; head oblong, obtuse, or attenuated above, often hollow, roughened by the slightly projecting, densely crowded perithecia, dark-rufous, about 2 cm. long and 6—8 millim. thick; stem olivaceous, becoming black, sending out, from its base, yellow fibrous rootlets, which embrace the matrix and penetrate the soil for 2 or 3 inches around; asci cylindrical, 250—300 x 7—9 μ, 8-spored; sporidia crowded, filiform, 150—180 x 7—9 μ, multiseptate, at length breaking up into subellipsoid, yellowish-hyaline joints, 3—4 x 2—3 μ; paraphyses very slender.

14. CORDYCEPS CAPITATA (Holmsk.) Link. Hand-bk. III, p. 347. Pers. Myc. Eur., tab. 10, fig. 1—4. Parasitic on *Scleroderma*, Carolina (Ravenel), Fungi Car. Exsicc., V, No. 48.

Stromata cæspitose, or solitary, simple, 3—8 cm. high; club, or head, ovoid-sphæroid, roughened by the slightly prominent, ovoid, densely crowded perithecia, liver-color or reddish-yellow, about 1 cm. thick; stipe equal, glabrous, citron color, or yellow, at length fibrose-strigose and yellowish-black, 3—4 millim. thick; asci cylindrical, very long, 15 μ thick; sporidia filiform, very long, at length breaking up into fusoid-elongated, or subbacillary joints, greenish-yellow and 25—40 x 5—6 μ.

C. SPECIES IMPERFECTLY KNOWN.

15. CORDYCEPS HERCULEA, Schw. Syn., N. Am., 1153. On the ground, among fragments of decaying wood. Salem, N. C. (Schweinitz).

Head large (12 millim. thick), ovate-clavate, obtuse, decurrent on the attenuate-elongated stem, alutaceous (leather color), yellow within, stipe also yellow; perithecia rather small, concolorous. Height of the whole fungus, about 1½ inches (36 millim.)

In Curtis' Catalogue, pp. 138 and 139, two other species are mentioned, but not described:

16. CORDYCEPS GRYLLOTALPÆ, M. A. C. On buried Sand moles.

17. CORDYCEPS ISARIOIDES, M. A. C. On dead moths.

GEN. III, EPICHLOE, FRIES.—Stroma effused, mostly amplexicaul; sporidia filiform.

18. EPICHLOE TYPHINA (Pers.)

Stroma pale, thin, surrounding the sheaths and included culms of living grasses (Phleum pratense, Dactylis glomerata and Carex, fide Peck), extending longitudinally for 2—5 cm., and bearing, in the early stage of growth, small (4—5 x 3 μ), ovoid, hyaline conidia (Sphacelia typhina, Sacc.), finally covered with a layer of semi-immersed, soft, carnose-membranaceous, yellow perithecia, with somewhat prominent ostiola. Asci cylindrical, 150—230 x 7—9 μ, slightly narrowed above, with the apex truncate, and capped with a subhemispherical, hyaline crest; sporidia 8 in an ascus, filiform, yellowish, multinucleate (becoming multiseptate) and nearly as long as the asci.

The species is common in Europe, and appears also to be widely diffused in this country. It is reported from Carolina to Pennsylvania and Iowa, and from Northern New York and Canada.

GEN. IV, HYPOCREA, FRIES.—Perithecia immersed in a pulvinate, or effused, subsuperficial stroma. Sacc. Syll. II, p. 581.

A. *Stroma vertically elongated.*

19. HYPOCREA PETERSII, B. & C. Grev. IV, p. 13.

"Agariciformis; stipite rugoso; peritheciis periphericis; ascis linearibus; sporidiis globosis.

At first sight, this looks like an Agaric invested with some *Hypomyces*, but the fructification is exactly that of a *Hypocrea*. Stem irregular, dilated upwards, about an inch high; head orbicular, irregular, rufous; perithecia both on the under and upper sides; sporidia globose in linear asci." Found in Alabama, by Hon. J. M. Peters.

20. HYPOCREA ALUTACEA (Pers.)

On bark of a decaying (maple?) limb, lying on the ground. Newfield, N. J. (Stroma?) about 2 cm. high, clavate, leather-color. Only two specimens were found, and those were immature, so that the fructi-

fication could not be made out, though the surface of the club was finely punctate from the ostiola of the immersed perithecia. Saccardo, in Sylloge, gives the perithecia as 200—225 μ, obtusely papillate, and at length subprominent; asci cylindrical, 56 x 4 μ; sporidia didymous, upper cell globose (4 μ), lower cell subovate (4 x 3 μ), hyaline. According to Tulasne & Broome, the club-shaped body is not the true stroma, but either *Clavaria ligula* or *Spathularia flavida*, bearing the *Hypocrea* as a parasite.

B. *Stroma pulvinate, disciform or effused.*

Sporidia 2-celled, easily separating in the middle.

a. Stroma pulvinate, or discoid.

1. *Sporidia hyaline.*

21. HYPOCREA RUFA (Pers.)

Stromata gregarious, superficial, subhemispheric, elliptical, or irregular in shape, mostly ½—1 cm. in diam., convex when fresh, contracted and rugose when dry, nearly brick-colored, punctulate by the slightly projecting ostiola, whitish within; asci cylindrical, nearly sessile, 65—75 x 4—5 μ, with 8 one-seriate, didymous sporidia, composed of two subequal, hyaline, subglobose, or subcubical cells, each 3—4 μ in diam.

22. HYPOCREA LENTA (Tode). Fr. S. M. II, p. 349.

"Stromata gregarious, 2—3 lin., broad, thick, margin repand, disk nearly plain, partially free from the matrix; perithecia minute, globose, immersed, ostiola punctate, minute." The only specimen of this species in our possession was sent from California by Dr. Harkness and is on wood of fir (Herb. Hark. 3496). In this specimen, the stromata are ¼—½ cm. in diam., nearly round, central portion adnate, leaving a narrow, free margin closely applied to the surface of the wood. The pale, globose, carnose-membranaceous, peripheric perithecia (200—220 μ in diam.) lie in a single layer, their ostiola very prominent and distinctly roughening the surface of the dirty-black stroma. Asci cylindrical, 80—110 x 5—6 μ, without paraphyses, containing 8 two-celled sporidia, each cell subcubical, or nearly globose and 4—4½ μ in diam., or slightly ovoid, 4—5 x 3—3½ μ.

23. HYPOCREA SCHWEINITZII, Fr. Elench. II, p. 60. (*H. contorta*, Schw. Syn. N. Am., 1224. N. A. F., 156.)

Stroma as in the preceding species, except that the central adnate portion is smaller, and, in well-grown specimens, the margin is distinctly undulate and sublobate; perithecia immersed, globose, or subovate (150 μ), scarcely roughening the surface, which is nearly punctate from the minute, slightly prominent ostiola; Asci cylindrical, 60—65 x 3½ μ, without paraphyses, containing 8 two-celled sporidia, composed of two globose, hyaline cells, 3—3½ μ in diam., and readily separable. On bark and wood. Common.

(To be continued.)

JOURNAL OF MYCOLOGY.

Vol. II. MANHATTAN, KANSAS, JUNE, 1886. No. 6.

SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 51.)

24. HYPOCREA RIGENS, Fr. l. c. (*H. lenta*, Schw. Syn. Car., No. 28, not *H. lenta* (Tode).)

This species is said to differ from the preceding in its smaller and more regularly-shaped stroma, with the perithecia confined mostly to the central portion of the disk and by its habitat on bare wood, and not on bark; the stroma is also said to be of a darker color, without any olive or greenish shade. We are inclined to think that these points of distinction are due to imperfect development and are not of specific value, and we have examined many specimens, as the species (as represented in N. A. F. and Rav. F. Am.) is very common, both around Newfield and West Chester. Both *H. Schweinitzii* and *H. rigens* are distinguished from *H. lenta* (Tode) by their smaller sporidia.

25. HYPOCREA SCUTELLÆFORMIS, B. & Rav. (Rav., Fungi Car., IV., No. 31.) On bark of *Acer rubrum*. Carolina. (Ravenel.)

Stromata scutellate, centrally attached, margin free and, in the larger specimens, undulate and sublobate, 1—2 millim. across, convex, nearly smooth, only slightly punctate from the scarcely prominent ostiola, color dull red; cells of the sporidia subglobose, 3—4 μ in diam. Our knowledge of this species is derived from the specimen cited, in which the asci had disappeared, but the globose cells of the sporidia were abundant.

In Grevillea XII, p. 78, it is stated that *H. scutellæformis*, B. & C. and *H. Ravenelii*, Berk., in Rav., Fungi Car., are two names for the same species, but in our copy of the collection cited, the sporidia are, as above described, entirely different from the brown, fusoid, 3-septate sporidia of *H. Ravenelii*, Berk.

26. HYPOCREA PATELLA, C. & P. 29th Rep. N. Y. State Mus., p. 57.

"Fleshy, patellate, discoid, 1—2 lines broad, pale ochraceous; asci cylindrical; spores globose, sixteen, hyaline, 3—4 μ in diam. Resembles, externally, some species of Helotium."

27. HYPOCREA MINIMA, Sacc. & Ell. Mich. II, p. 570.

Stromata scattered, superficial, pulvinate, discoid, olivaceous, becoming nearly black when dry, hardly 1 millim. in diam., minutely punctulate from the slightly prominent ostiola, texture finely cellular, dark olivaceous; asci cylindrical, without paraphyses, 75 x 3½—4 μ, subsessile, containing 8 didymous, hyaline sporidia composed of two globose-cuboidal cells about 3½—4 μ and readily separating. On bark of dead *Magnolia glauca*. Newfield, N. J.

28. HYPOCREA OLIVACEA, C. & E. Grev. II, p. 92.

Stromata scattered, consisting, at first, of patches of thin white tomentum ½—1 cm. in diam., becoming carnose and subpulvinate and of an olive-yellow shade, at length dark olive, or nearly black, and punctate from the slightly prominent ostiola; asci cylindrical, 65—75 x 3½—4 μ, contracted below into a substipitate base, and containing 8 two-celled, hyaline sporidia, the cells nearly globose, about 3 μ in diam., and readily separating. On decaying pine wood. Newfield, N. J. What appears to be the same was found on decaying bark of Sassafras lying on the ground.

29. HYPOCREA STEREORUM, Schw. Syn. N. Am., 1183. On *Stereum fasciatum*. Bethlehem, Pa. (Schw.) On *Polyporus Curtisii*. South Carolina. (Ravenel.)

"Undulate-confluent, applanate, margin sublobate, surface plicate, subpulvinate, flesh-color, becoming brown; when young, covered with a white tomentum and then more distinctly pulvinate; sometimes solitary, but generally confluent in elongated strips in the folds of the matrix; substance quite soft, but not gelatinous; surface granular from the prominent perithecia, which are distinctly ostiolate and *not* immersed in the whitish subjacent stroma; seminal dust (sporidia) copious. Often confluent for an inch in length, the separate, cushion-like stromata 3—4 lin. broad; margin partially free."

We have seen no specimens, and copy the above description from Schw. Cooke, in Grev. XII, p. 78, says the cells of the (didymous) sporidia are subglobose and hyaline.

30. HYPOCREA RICHARDSONI, Berk. & Mont. On bark of dead poplar.

Discoid-tubercular, scattered, or gregarious, dull purplish-red, centrally attached, ½ cm. across, deeply wrinkled, margin sublobate and free, whitish within. In Grevillea IV, p. 14, Berkeley states that the asci are clavate and the sporidia elliptic, and that it was first gathered in one of the Arctic expeditions by Sir J. Richardson. All the specimens we have seen are entirely sterile, like those in N. A. F., 1321. *Tuberculariа pezizoidea*, Schw., is said to be the same. Its range appears to be northward from Maine to Wisconsin and west to Colorado and Utah.

31. HYPOCREA SOLENOSTOMA, B. & Rav. Grev. IV, p. 14. On decaying *Pachyma cocos*, Schw. Carolina.

"Subglobose, pale rufous, rather irregular; ostiola cylindrical, elongated; sporidia globose, 4 μ in diam."

32. HYPOCREA LATI-ZONATA, Pk. Parasitic on *Cyathus striatus*, Hoff.

Subiculum dirty white, forming a broad (½—¾ cm.) band around the outside of the cups of the *Cyathus*, thickly punctated with the dark-brown, slightly prominent ostiola. Asci cylindrical, 75—80 x 3½—4 μ, containing eight didymous sporidia, the cells separable, subglobose, hyaline and 3—3½ μ in diam. A very curious species sent from Ohio, under the above name, by Prof. A. P. Morgan.

33. HYPOCREA VIRIDIRUFA, B. & Rav. Grev. IV, p. 14. On dead alders. South Carolina. Ravenel.

"Subglobose, conjested, or confluent, greenish-rufous; ostiola impressed; sporidia oblong, with two nuclei."

In Grevillea XI, p. 129, this is referred to Hypoxylon, but if the specimen of *H. rufo-viridis*, B. & Rav., in Rav., Car. fasc. V., No. 53, is the same as *H. viridi-rufa*, B. & Rav., in Grev., l. c., the stroma is not carbonaceous (as it should be in Hypoxylon), but carnose. The specimen referred to is, in our copy, without fruit.—apparently immature.

11. *Sporidia colored.*

34. HYPOCREA GELATINOSA (Tode). On rotton wood both of deciduous and coniferous trees.

Stromata gregarious, superficial, pulvinate, or subhemispheric, carnose, soft, punctate from the slightly prominent ostiola, 1½—3 millim. in diam. at first with a thin, light-colored tomentum at the base, pale, becoming yellowish or at length greenish, whitish within, subrugose, and partially collapsing when dry; asci cylindrical, contracted into a short pedicel at the base, 80—90 x 3½—4½ μ, 8-spored; sporidia composed of two unequal cells, the upper nearly spherical (4 μ in diam.), the lower ellipsoid, or ovoid, 3 μ, yellowish. Probably common throughout. *Var. viridis* (Tode) is reported by Prof. Peck on maple chips, New York state.

35. HYPOCREA CHLOROSPORA, B. & C. Grev. IV, p. 14. On decaying bark. Newfield, N. J.. also reported from New York.

Stromata small, greenish, nearly round, sessile, convex (1—1½ μ), roughened by the rather prominent ostiola. Asci narrow cylindrical, about 75 x 4 μ, with eight two-celled sporidia, each cell subcubical or nearly globose, of an olivaceous color and 3—3½ μ in diam.

36. HYPOCREA CHROMOSPERMA, C. & P. 29th Rep. N. Y. State Mus., p. 57. On decaying wood. Buffalo and Greenbush, N. Y.

"Fleshy, soft, convex, orbicular, 1—2 lines broad, flattened and patellate when dry, whitish or watery tan-color; ostiola slightly prominent; asci cylindrical; spores quadrate-globose, brownish when mature, 4—5 μ."

37. Hypocrea cubispora, Ell. & Hol. Jour. Mycol., I, p. 4. On a decaying log. Iowa.

Stroma tuberculiform-obconic, subplicate below, about 1 cm. broad by ¾ cm. high, lemon yellow within and without, surface minutely punctate with the black ostiola; perithecia peripheric, globose, about 250 μ in diam., contents black; asci cylindrical, containing eight cubical or oblong-truncate, dark olive or brownish-black, 2-nucleate, 4—7 x 3—4 μ sporidia, some of which are obscurely uniseptate.

B. *Stroma effused.*

I. *Sporidia hyaline.*

38. Hypocrea citrina (Pers.)

Thin, effused, carnose, lemon color, punctate from the dark, rather prominent ostiola, forming a thin crust overspreading decaying wood and bark, or, sometimes, decaying leaves and mosses for several inches in extent; asci cylindrical, 90—110 x 5—6 μ, cells of the didymous sporidia unequal, subglobose, 4—6 μ in diam. This is one of the commonest species. *Var. fungicola*, Karst. Myc. Fenn., II, p. 204, is reported, by Prof. A. P. Morgan, from Ohio.

39. Hypocrea armeniaca, B. & C. Grev. IV, p. 15.

"Forming a thin, apricot-colored stratum which, when barren, looks like *Corticium ochroleucum*, at length fertile; perithecia superficial, scattered, of a deeper tint." Specimens found at Newfield, on pine wood and bark, agree with the description quoted, except that the perithecia can hardly be called superficial, and the subglobose cells of the didymous hyaline spores are rather less than 3 μ in diam., whereas, according to Cooke, in Grev. XII, p. 78, they are 4 μ in diam.

40. Hypocrea ochroleuca, B. & Rav. Grev. l. c., from the brief description, can not well be distinguished from the preceding species. The cells of the sporidia are said by Cooke, in Grev., l. c., to be 6 μ in diam.

41. Hypocrea lactea, Fr. Summa, V. S., 383.

"Carnose, broadly effused, bare, milk white, ostiola punctiform; asci cylindrical, 56 x 3 μ, subequal cells of the didymous, hyaline sporidia, globose, 3 μ in diam." Sacc. Syll. II, p. 529, the species is credited to North America. We have seen no specimens. The habitat is given as on rotton wood, on *Polyporus medulla-panis* and on the ground.

42. Hypocrea sulfurea, Schw. Syn., N. Am., 1221.

"Rather thin, subcarnose, at length horn-like in texture (when dried), the thin, partially free margin variously lobed, sulphur-color, white within; perithecia crowded, globose-depressed, immersed, dirty-yellow; ostiola concolorous, papillate, situated in little pit-like depressions of the otherwise smooth surface. On bark. Rare. Separable when fresh, subrotund, 1½ inches across." In Grev., l. c., the globose cells of the hyaline sporidia are said to be 5 μ in diam.

43. HYPOCREA PALLIDA, E. & E. n. s. Parasitic on decaying Polyporus cæsius. Newfield, N. J.

Perithecia pale horn-color, subglobose (250 μ), immersed in a rather scanty, loose, white, tomentose mycelium (stroma), which overspreads the surface of the pores and covers the sides of the perithecia themselves, leaving their apices and papilliform ostiola bare; asci cylindrical, 65—75 x 4—4½ μ, containing eight oblong-elliptical, 2-celled hyaline sporidia, the cells subcubical or nearly globose, 3 μ in diam. and readily separating. The upper part of the perithecia collapses when dry, and, in old or weather-beaten specimens, the tomentose stroma disappears, leaving the perithecia sessile on the mouths of the pores. We have seen no specimens of *H. polyporoidea*, B. & C., but our species will be distinct from that, in the absence of any crust-like stroma and in its smaller sporidia. It was first found in October, 1880, and again in October, 1886.

44. HYPOCREA CORTICICOLA, E. & E. Journ. Mycol., I, p. 140. On bark of dead limbs of *Magnolia glauca*. Newfield, N. J., August, 1885.

Stroma thin, milk-white with the margin slightly cottony, forming a continuous layer, extending along the limb for six inches or more, finally becoming dirty-white, and cracking into small areas, as in *Corticium polygonium*; perithecia globose, pale, 75—100 μ in diam., buried in the stroma and visible under the lens as horn-colored specks; asci clavate-cylindrical, 20—22 x 3½ μ, sessile, without paraphyses; sporidia biseriate, eight in an ascus, each consisting of two globose, hyaline cells, easily separating and 1—1½ μ (mostly 1 μ or a little over). This is closely allied to *H. hypomycella*, Sacc., Mich. I, p. 302, Syll. II, p. 529, but differs in its asci and sporidia being only about half as large as in that species.

45. HYPOCREA POLYPOROIDEA, B. & C. Grev. IV, p. 15. On beech. Alabama, Peters, 6110.

"Peritheciis tomentosis, liberis, in crustam pallidam insidentibus. Fawn-colored; perithecia free, tomentose with a naked ostiolum, seated on a pale crust, here and there elevated, which is thin towards the margin. A very curious species." Cooke, in Grev., l. c., gives the hyaline, subglobose cells of the sporidia as 5 μ in diam.

C. *Stroma discoid. Sporidia continuous, hyaline.*

46. HYPOCREA CONSIMILIS, Ell. Grev. XII, p. 79. N. A. F., 158.

Stroma orbicular or elliptical, convex, 2—4 millim. across, brick-red, wrinkled, carnose; asci clavate-cylindrical, 60—70 x 4 μ; sporidia 1-seriate, hyaline, 10—12 x 3½—4 μ. On dead *Azalea viscosa*. Newfield, N. J.

D. *Stroma pulvinate or effused. Sporidia fusoid, hyaline, 1-septate.*

47. HYPOCREA APICULATA, C. & P. 29th Rep. N. Y. State Mus., p. 57.

"Fleshy, soft, growing in irregular patches, smooth, ochraceous, inclining to orange, the extreme margin barren; asci cylindrical; spores fusiform with an apiculus at each end, 1-septate, colorless, 27—37 x 7½—10 μ. On the ground and on rocks. Catskill mountains, New York."

48. HYPOCREA PAPYRACEA, Ell. & Hol. n. s. Under side of an old log. Decorah, Iowa (Holway).

Stroma membranaceous, thin, separable, 2—3 cm. across, white with a yellow, substerile margin; perithecia superficial, fawn-colored, small (150 μ), thickly scattered on the stroma; asci slender, about 75 x 3 μ, (spore-bearing part about 60 μ), without paraphyses; sporidia fusoid, hyaline, 1-septate, 8—10 x 2½—3 μ, readily separating at the septum. The yellow margin may be only accidental. This differs from *H. corticioides*, B. & Br., in its larger sporidia and different color.

49. HYPOCREA DIGITATA, Ell. & Holway. Journ. Mycol. I, p. 42. On a dead limb. White mountains, N. H. Miss Minns.

Stroma carnose, yellowish, digitate, radiating from a central point and dividing into numerous (2 millim. in diam.) semicylindrical, finger-like lobes, closely oppressed to and surrounding the matrix and extending longitudinally for about 5 cm. The rounded ends and the sides of the lobes are sterile, the perithecia being found only on the upper or outer surface; perithecia immersed, their position being indicated only by the prominent but minute black ostiola; asci cylindrical, 80—90 μ long; sporidia 1-seriate, ends mostly overlapping, hyaline, 1-septate, oblong or narrow-elliptical, often subinequilateral, 20—26 x 6—8 μ. The stroma is like the fingers of a hand clasping the limb. The sporidia are those of a *Hypomyces*, to which, perhaps, this should be referred, though it is not parasitic on any other fungus, unless the finger-like lobes are an abortive growth of some hymenomycete, which is not impossible.

50. HYPOCREA CITRINELLA, Ell. Bull. Torr. Bot. Club, VI, p. 108.

Stromata scattered or subconfluent, minute (1—2 millim.), thin-pulvinate, bright lemon-color, atro-punctate from the minute ostiola; asci slender, 100—120 x 5—6 μ; sporidia fusoid, hyaline, 1-septate, 1-seriate, 12—14 x 3—3½ μ. On dead twigs and limbs of *Vaccinium corymbosum* not yet fallen and not much decayed. In the original description, the true character of the sporidia was overlooked, the specimens first found being rather old and the cells of the sporidia separated.

E. *Stroma pulvinate. Sporidia fusoid, 3-septate, brown or yellowish.*

51. HYPOCREA RAVENELII, B. Grev. IV, p. 14. Rav. Car. V, No. 51.

"Pulvinata, rugosa, rubra; ascis clavatis; sporidiis biseriatis, fusiformibus, demum triseptatis, .0015—.0016 inch long. On *Ostrya Virginica*, *Acer rubrum*. Car. Inf., 1575." This description, copied from Grevillea, applies well to the specimen in Rav. Car., except the color which, in Ravenel's specimen, is cinereous or argillaceous. The young specimens, however, are a dull brick red, but never bright red. There is some confusion as regards this species and *H. scutelloeformis*, B. & Rav. As already noted, the two are said by Cooke to be the same (Grev. XII., 78), but the specimens of the two species in Rav. Car. are quite distinct. *H. Ravenelii*, Berk., as represented in Rav. Car. V, 51, is as follows: Stroma erumpent, tuberculiform-convex, clay color, becoming darker.

roughened by the blackish, rather large and prominent ostiola, 1—2 millim. in diam; asci 90—110 x 12 μ; sporidia fusiform, slightly curved, 3-septate, brown, 38—45 x 3—4½ μ. *Diatrype lateritia*, Ell., Bull. Torr. Bot. Club., IX, p. 19, and *Hypoxylon myriangioides*, B. & C.(?) N. A. F., 474, are the same as this. The same thing is also to be found in Roumeguere's Fungi Gallici, No. 1174, on bark of *Corylus*, collected at Lyons, France. The young stroma, as already noted, is of a pale brick color, and is sometimes nearly plane above and at length more or less rugose and pitted from the collapsing of the upper part of the perithecia. Whether the *Hypoxylon myriangioides*, B. & C., is really the same as this, we are still unable to say, but the description of that species in Grevillea renders such a supposition not improbable.

52. HYPOCREA CHLORINA, Cke. Grev. VII, p. 49. Rav. F. Am., 342.

Flattened, discoid, elliptical or elongated, 1—2 millim. in diam., clay colored (bright yellow within); perithecia immersed, brown, ostiola blackish, punctiform; asci clavate, spore-bearing part about 75 x 15 μ, surrounded with abundant filiform paraphyses; sporidia biseriate, narrow-elliptical, endochrome three times divided, yellowish (becoming brown ?), 20—25 x 8—9 μ. On bark of hickory. Darien, Ga. The stroma is of about the same color as the bark, flatter than in the preceding species, but of about the same color.

F. *Stroma pulvinate or effused. Sporidia filiform.*

HYPOCRELLA, Sacc. Syll. II, p. 579.

a. Perithecia subconfluent.

53. HYPOCREA PHYLLOGENA, Mont. Syll., 711.

"Stroma pulvinate, hemispheric, base constricted and orange-colored; perithecia peripheric, erect, ovate and, with the punctiform ostiola, bright purple, sunk in the upper part of the stroma, which is of the same color; asci linear with the apex cap-shaped or obtusely conic; sporidia linear, curved, finally breaking up into segments 16—18 x 2 μ. On living leaves of *Cantarea Cayenne*." We have included this species, which will not improbably yet be found in Southern Florida or Mexico.

54. HYPOCREA HYPOXYLON, Pk. 27th Rep. N. Y. State Mus., p. 108. On stems of living grasses. Maine and Florida (Scribner), New York (Peck.), New Jersey (Ellis), Massachusetts (Farlow).

"Convex or pulvinate, subconfluent, blackish externally, white within; seated on a whitish or gray subiculum; ostiola prominent; asci very long and linear; spores elongated, filiform, multinucleate, colorless." According to Farlow, in Bull. Bussey Inst., this is not distinct from *Dothidea vorax*, B. & C., of which *D. atramentaria*, B. & C. (N. A. F., 683), is only a variety, and we now suspect that *Ephelis borealis*, E. & E., Journ. Mycol. I, p. 86, is only the stylosporous stage of the same thing. There is some uncertainty as to whether Peck or Berkeley has priority of publication, also as to the true place of species in the systematic arrange-

ment. In the Newfield specimens, which were on *Panicum* (*capillare* ?), the fungus forms an even layer entirely surrounding the culm, just below the internodes, with just the same habit as *Epichloe typhina* and without any tubercular projections, as in the specimens from all the other localities mentioned.

55. Hypocrea atramentosa, B. & C. Journ. Linn. Soc. X, p. 377.

"Forming a thin black stratum on the under side of the leaves of grasses in Cuba and of *Andropogon* in Alabama. Perithecia globose and, with the ostiola, immersed; sporidia filiform." Does this differ from *Dothidea atramentaria*, B. & C.?

b. Perithecia separate.

56. Hypocrea tuberiformis, B. & Rav. Grev. IV, p. 13. Rav., F. Am., 733. "Magna, tuberiformis, mycelio radiato, albo affixa." On stems of *Arundanaria*. Car. Inf., Ravenel, No. 1220.

"Forming either a large mass ¾ of an inch across or two or three distinct, subglobose individuals, fixed to the stem by a radiating, white, rugose mycelium; at first yellowish, then black."

Apparently, the original specimens were imperfect and, as those in Rav. F. Am. are either young or sterile, we can only say that the perithecia are subcylindrical and stand on the stroma like the young horns of *Podisoma macropus*, about 1 millim. high.

The following species are imperfect or obscure:

57. Hypocrea parasitans, B. & C. Grev. IV, p. 15.

"Minuta, subelliptica, pruinosa, pallida; sporis majoribus, subglobosis. On *Hydnum erinaceum*, Car. Inf., No. 6190. Minute, pallid, subelliptic, sometimes winding around the teeth; spores globose, rather large."

58. Hypocrea subviridis, B. & C. Grev. l. c.

"Effusa pallide viridis tomentosa in mycelio niveo insidens. On dead grass leaves. Car. Inf., 4955. Effused; perithecia pale dull green, tomentose, crowded, seated on a white mycelium. A curious species."

59. Hypocrea sterilior, Schw. Syn., N. Am., 1188.

"Substance at first rather soft, broadly effused, applanate, surface longitudinally striate, flesh-color, becoming light yellow. When dry, the margin is very delicate, cottony, with interwoven fibres, with which the whole appears smoothly (lightly ?) covered; texture carnose-horny; perithecia few, scattered; about an inch in circumference and two lines thick."

60. Hypocrea sublobata, Schw. Syn., N. Am., 1225.

"Scutellate, small, slightly attached, margin obtuse, lobate-repand, black, then subolivaceous; surface flat, rugulose; perithecia subperipheric, in a single layer, becoming yellow, immersed in the light yellow stroma; ostiola impressed; not exceeding 2—3 lines in diam. On bark of *Platanus*. Bethlehem, Pa."

61. HYPOCREA MOLLIUSCULA, Schw. Fr. Elench. II, p. 66.

"Minute (1 line across), round, plano-convex; perithecia small, entirely hidden, connate, surface of the stroma roughened by the ostiola, pruinose, sooty-black. On rotten wood. Pennsylvania."

GEN. V. HYPOMYCES, FRIES.

Mostly parasitic on other fungi. Subiculum (stroma) cottony-velutinous.

* *Sporidia continuous.*

62. HYPOMYCES VAN BRUNTIANUS, Ger. Bull. Torr. Bot. Club, IV, p. 64.

Perithecia globose, densely crowded, pallid, hygrophanous, immersed, with a short, thick, exserted, obtuse mouth; subiculum white; sporidia oblong, hyaline, shortly apiculate at the broad end, obtusish at the other, 14—16 x 3½—4½ μ; asci cylindrical. On the pileus, stipe and gills of an unknown *Agaric*. Poughkeepsie, N. Y. (Gerard), Iowa, (Holway).

63. HYPOMYCES VIRIDIS (A. & S.). Consp., p. 8. Sacc., Syll. II, p. 472. On *Agaricus alutaceus*, Carolina (Ravenel), Pennsylvania (Michener), New England (Sprague).

Stroma broadly effused, with a dirty, yellowish-green tomentum and sterile margin; perithecia closely packed, ovoid or sphæroid, pale, with their conical apices projecting and becoming dark brown or black. Asci cylindrical, 170—180 x 7—8 μ, containing eight elongated, straight or curved, mucronate sporidia, 28—30 x 5 μ, yellowish-hyaline, continuous or with the endochrome sometimes 2-parted.

64. HYPOMYCES POLYPORINUS, Pk. 26th Rep. N. Y. State Museum, p. 84. On *Polyporus versicolor*, N. Y. (Peck).

Perithecia minute, ovate or subconical, seated on a pallid subiculum, smooth, yellowish or pale amber; asci narrow, linear; sporidia fusiform, acuminate at each end, nucleate, 15—18 μ long. The outward appearance is almost exactly the same as that of *Hypocrea pallida*, E. & E.

65. HYPOMYCES APIOSPORUS, Cke. Grev. XII, p. 80. On *Clavaria pistillaris* (?) N. Y. (Gerard).

Effused, pale, thin; perithecia semi-immersed, slightly papillate (honey color when dry), ostiola indistinct; asci cylindrical, eight-spored; sporidia lanceolate, apiculate above, rounded below, minutely roughened, continuous, yellowish (except the apiculus), 18 x 6½ μ.

66. HYPOMYCES BANNINGII, Pk.

"Subiculum white, then sordid; perithecia crowded, ovate with a papilliform ostiolum, pale amber or honey color; asci slender, cylindrical; spores uniseriate, oblong-fusiform, white in the mass, 30—37 x 4—5 μ. Decaying fungi, apparently some *Lactarius*. Baltimore, Md. Miss Banning. The spores, in our specimens, are simple, but they may possibly become uniseptate when old." Copied from Bot. Gaz., IV, p. 139.

(To be continued.)

JOURNAL OF MYCOLOGY.

Vol. II. MANHATTAN, KANSAS, JULY, 1886. No. 7.

SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 69.)

67. HYPOMYCES TRANSFORMANS, Pk. 29th Rep. New York State Mus., p. 57. On *Cantharellus cibarius* which it transforms into an irregular mass. New York (Peck), Massachusetts (S. J. Harkness), Pennsylvania (Everhart).

Subiculum effused, variable in color, pallid, golden-yellow, ochraceous or brick-red; perithecia ovate or subglobose, papillate, sunk in the subiculum; ostiola prominent, obtuse, amber or orange; asci cylindrical; sporidia fusiform, apiculate at each end, somewhat rough, continuous or rarely with the endochrome obscurely divided, colorless, 33—38 μ long.

68. HYPOMYCES GEOGLOSSI, E. & E. On *Geoglossum (glabrum)*? Newfield, N. J., September, 1876. Occupying the greater part of the hymenium of the host, the proper fruit of which is mostly suppressed.

Perithecia immersed, subglobose (75—80 μ), subangular from mutual pressure; ostiola papilliform, black; asci clavate-cylindrical, subsessile, yellowish, 75—80 x 6—7 μ, containing eight crowded, subbiseriate, clavate-oblong, continuous, hyaline, 6—8 x 2½—3 μ, sporidia. The subiculum appears to be obsolete, the perithecia being immersed in the hymenium of the host. As no notes were taken on the fresh specimens, the color of the perithecia can not be certainly stated, but in the dry specimens, they are nearly or quite black.

69. HYPOMYCES XYLOPHILUS, Pk. Bull. Tor. Bot. Club, XI, p. 28.

Subiculum effused, whitish; perithecia numerous, crowded, small yellowish, with a blunt ostiolum; asci cylindrical, 90—112 x 6—7½ μ; sporidia continuous, uniseriate, subfusiform, 15—17 x 5—6 μ. On decaying wood. Ohio (Morgan).

70. HYPOMYCES HYALINUS, Schw. Syn. Car., No. 35. On *Russula foetens*. Carolina (Schw.)

Effused, thin, glabrous, hyaline-fuscous, roughened with the crowded, dark-colored ostiola; asci cylindrical, 8-spored; sporidia elliptic-fusoid, 15—20 x 4½—5 μ, uniseriate, continuous, greenish-hyaline.

** *Sporidia uniseptate.*

71. HYPOMYCES LATERITIUS, Fr. On the hymenium of several species of *Lactarius*. New England (Murray & Sprague), Carolina, on *Lactarius Indigo* (Ravenel), Potsdam, N. Y. (Ellis).

The mycelium forms a dense, white, felt-like stratum, which finally becomes more compact and of a pale brick color; perithecia spherical or subovate, abundant, sunk in the stroma, except their slightly prominent, smooth, brownish ostiola; asci cylindrical, 200—250 μ long, spore-bearing part 112 x 6—7 μ; sporidia uniseriate, elongate-fusiform, uniseptate, acuminate at each end, yellowish-hyaline, 18—20 x 4—4½ μ.

72. HYPOMYCES AURANTIUS, Pers. On *Stereum* and on the under side of logs. Carolina. (Ravenel.)

Perithecia gregarious, subsphæroid, their apices projecting from the effused, orange-colored subiculum; asci cylindrical, 8-spored, 110—140 x 6 μ; sporidia uniseriate, uniseptate, fusoid, with the ends subapiculate, slightly curved, nearly smooth, 15—24 x 5—6 μ, hyaline. The white mold, *Diplocladium minus*, Bon., is said to be its conidial stage.

73. HYPOMYCES LACTIFLUORUM, Schw. Syn. Car., No. 34. On *Lactarius*, especially *L. piperatus*. Carolina (Ravenel), Pennsylvania (Everhart), New Jersey (Ellis).

In the affected specimens of *Lactarius*, the gills are entirely obliterated, so that the hymenium of the *Agaric* presents an even, orange-colored suface in which the subglobose perithecia are thickly bedded with only their slightly prominent reddish ostiola visible; asci long and slender; sporidia uniseriate, fusiform, straight or slightly curved, rough, hyaline, 1-septate, cuspidate, pointed at the ends, 30—38 x 6—8 μ. The general appearance is much the same as that of the preceding species, but it differs in its larger, rough, warted sporidia and the absence of the felt-like mycelium. In decay, the color changes to a purplish red.

74. HYPOMYCES ROSELLUS (A. & S.) Consp., p. 88, tab. 7, fig. 3. On various decaying fungi and on the ground or on leaves and rubbish near where fungi have decayed. Pennsylvania (Michener & Everhart), Plainfield, N. J. (Meschutt).

Mycelium lax, effuse, consisting of loosely-woven threads, at first white and bearing conidia (*Tricothecium agaricinum*, Bon.), then deep rose-color or nearly blood-red; perithecia deep rose-red, subspherical or ovoid, of variable size, buried in the stroma, except the projecting, rather obtuse papilliform ostiolum; asci linear, 150 x 6—7 μ, with eight uniseriate, narrowly lanceolate, apiculate, straight or slightly curved, hyaline, 22—37 x 5—7 μ sporidia, nucleate or spuriously 1—3-septate and often subinequilateral.

Dr. C. B. Plowright, in his valuable monograph of this genus in Grevillea, Vol. XI, says: "There are two varieties of this species, one with larger, pointed perithecia, as figured by Greville and by Albertini & Schweinitz; the other, with smaller and more obtuse perithecia. The sporidia vary a good deal in size, as does the color of the subiculum, which is sometimes nearly absent. Sometimes it is almost white, but mostly rose colored, with a whitish margin." The specimens from Mr. Meschutt were on decaying leaves, forming little patches ½—1 cm. across.

75. HYPOMYCES OCHRACEUS, Pers. On decaying *Agaricus*. Pennsylvania (Michener).

Perithecia crowded, subglobose, yellowish, immersed, with a short, thick, obtuse, exserted ostiolum; subiculum (*Verticillium agaricinum*, Cda.) at first white, then straw-colored, ochraceous and yellow; asci cylindrical, 25—30 x 6½ μ, containing eight oblong-lanceolate, uniseptate, constricted, 35 x 6½ μ sporidia, which are mucronate at each end.

76. HYPOMYCES ASTEROPHORUS, Tul. Parasitic on *Nyctalis*. Carolina. (Ravenel.)

Perithecia originating in an effused, byssoid stroma, in which they are thickly strewn, ovoid or sphæroid, narrowed above into a more or less elongated neck, with an acute, pervious, ciliate ostiolum, pale, yellowish-brown, subhyaline, 150 μ high by 70—90 μ broad; asci broadly ovate, abruptly attenuated below, 40—50 x 18—20 μ, containing 4—6 narrowly lanceolate, slightly curved, mucronate at each end, 1-septate, subhyaline, then dirty-yellow, 25—35 x 6 μ sporidia.

Dr. Plowright, in his monograph already cited, says: "The perithecia of this species of *Hypomyces* differ considerably from those of the other members of the genus. They are formed of very large polygonal cells, which become elongated and parallel where they form the ostiolum and are formed by the intertwining of the dilated and convoluted bases of the conidial-bearing hyphæ that compose the stroma. These (the perithecia) are most frequently found upon the inside of the stem of the *Nyctalis*, but they are by no means of common occurrence."

77. HYPOMYCES TOMENTOSUS, Fr. Found on same *Agaric*. Berkeley. Notices of N. Am. Fungi, in Grevillea IV, p. 15.

Of this species, but little appears to be known. It is stated by Cooke, in Grevillea XII, p. 80, that the asci are cylindrical and the sporidia lanceolate, mucronate at each end, uniseptate, hyaline and 42—50 x 6—7 μ.

78. HYPOMYCES INSIGNIS, B. & C. Fungi Mexico, No. 6, p. 424. Red; mycelium effused; perithecia oblong, more deeply colored; sporidia fusiform, apiculate at each end, 37 μ long, spuriously 1-septate, hyaline. On the hymenium and pileus of *Cantharellus*, which it covers with a red stratum and obliterates the gills. In Mexico, near Orizaba (Botteri).

The above is copied from Saccardo's Sylloge, Vol. II, p. 472, and is all we know of this species. From the brief description, one might suppose that this and *H. transformans*, Pk., are the same.

79. HYPOMYCES TEGILLUM, B. & C. Grev. IV, p. 15. "On pine. Carolina. (Ravenel).

"Perithecia ovate, rufous-brown, scattered, a continuous white mycelium, like thin parchment."

80. HYPOMYCES FLAVESCENS, Schw.

Perithecia gregarious, distinct, globose-ovate, papillate, whitish, covered with a villose coat that finally disappears, seated on a milk-white, broadly effused, pubescent subiculum; asci cylindrical; sporidia narrowly-elliptical, hyaline (uniseptate)? On hymenium of some resupinate *Polyporus*. Pennsylvania (Schweinitz.)

81. HYPOMYCES PANNOSUS, Schw.

Stroma effused, whitish, shaggy, thin, margin fimbriate-cottony; perithecia semi-immersed, pale, with dark-colored, punctiform ostiola; asci cylindrical; sporidia (?) On rotten wood. Ex. Herb. Schw. The descriptions of this and the preceding species are taken from Grevillea XII, p. 80, and were, apparently, made from specimens in Herb. Berkeley. They are not in Schw. Synopsis N. Am. The *H. pannosus* here described is said to be a different thing from the *Sphæria pannosa*, Fr.

In the next two species, the fructification is unknown.

82. HYPOMYCES TUBERICOLA, Schw. Syn. N. Am., No. 1192. On an old "White Tuber" infesting the outer bark. Found at Pocono, Pa.

Effused, thin, brown-black, margin scarcely determinate; perithecia at first subimmersed, finally erumpent ("omnino prominulis"), brown-black, rugose tuberculate, minute, subconic, densely crowded, at length collapsing. The interior of the perithecia is said to be entirely similar to that of the preceding species, *i. e.*, *H. Lactifluorum*, etc. Whether the "White Tuber" is an old specimen of *Pachyma cocos* is uncertain.

83. HYPOMYCES BOLETICOLA, Schw. Syn. N. Am., No. 1494. Found but seldom on very much decayed *Polyporus citrinus*, at Bethlehem, Pa. Allied to *H. aurantia*, Fr., but distinguished by its paler color, by the character of the subiculum (stroma) and shape of the perithecia; subiculum effused, interrupted, of loose texture, with irregular spaces ("plagis irregularibus"), pale orange with the margin whitening out; perithecia only partially immersed, conic-ovate, more or less scattered at first, colored like the stroma, at length orange-red, rather soft, papillate, easily separating from the stroma, leaving small cavities, contents of the perithecia very white, at length oozing out and remaining attached to the ostiola like a white villous pubescence.

MYCOGONE CERVINA, Ditm, which is found on *Helvella* and on various decaying *Pezizas* and *Asterophora Pezizæ*, Cda., on *P. hemispherica*, both of which are found here, are, with several similar molds, regarded as the conidial stage of different species of *Hypomyces*, of which the ascigerous stage has not been found.

GEN. VI, POLYSTIGMA, PERSOON.—(Moug. et Nest. No. 270). Stroma subcarnose, effused, colored (ochraceous, red or yellow), phyllogenous; perithecia immersed; asci 8-spored; sporidia ovoid, continuous, hyaline.

81. Polystigma rubrum (Pers.), D. C.

(*Xyloma rubrum*, Pers. Syn., 105; *Dothidea rubra* (Pers.), Fr. S. M., 553.) Hypophyllous, suborbicular, slightly convex, 2—4 millim. across, with an even margin, red, at length darker; perithecia (cells) small, immersed, reddish; ostiola impressed, punctiform, becoming more prominent; asci clavate, 8-spored; sporidia ovoid, subobtuse, straight, subhyaline, 10 x 6 μ. The spermogonial stage is *Libertella rubra*, Bon. Spermatia filiform, uncinate, 30 μ long. On living leaves of several species of *Prunus* (*P. domestica*, *P. spinosa*). In Saccardo's Sylloge, the species is credited to this country, but we are not aware by whom or where collected.

85. Polystigma (?) Bumeliæ, Schw.

(*Dothidea Bumeliæ*, Schw. Syn., N. Am., No. 1884.) Epiphyllous on living leaves of *Bumelia oblongifolia*, found in the Arkansas region by Nuttall. Stroma orbicular, large ¾ cm. and over, ovate or of somewhat irregular shape, conspicuous on both sides of the leaf, on the upper side brick-red and somewhat shining as if varnished, paler and without any varnished appearance below; perithecia (cells) few, scattered, minutely pseudo-ostiolate and subprominent.

Gen. VII, Nectria, Fries.—Perithecia carnose-membranaceous, mostly bright colored, cæspitose and generally seated on a subcarnose stroma (tubercularia); sporidia oblong or fusoid, hyaline.

A. *Sporidia continuous.*

* *Asci polysporous* (*Chilonectria*).

86. Nectria cucurbitula, Curr.

Perithecia cæspitose, orange-red, nearly smooth, at length collapsing; ostiolum papilliform, minute; asci clavate-cylindrical, 75—100 x 10—12 μ, filled with countless minute sporidia, 2—3 (mostly 2½ μ) x 1—1¼ μ. In the early stages of growth, the asci contain 2—4 cylindrical bodies about 3 μ thick and varying in length from 15 μ to nearly the entire length of the asci. These elongated bodies are subundulate and often appear distinctly multiseptate with the septa either running square across or with their ends a little curved so as to give the appearance of a series of hyaline, subglobose sporidia, but finally these cylindrical bodies are filled with the minute sporidia, which at length fill the entire cavity of the asci. Sometimes, instead of the elongated bodies, some of the asci will be seen to contain one or two series of faintly-outlined, subglobose cells, which, also, are at length filled with the minute sporidia and disappear. The peculiarity here noted has been observed in all the specimens on coniferous trees thus far examined and we fancy we see the same structure in the *N. cucurbitula*, issued by Fries in his Sclor. Suec., which we have had the opportunity of examining. On *Pinus rigida* and *P. strobus*, Newfield, N. J., and on *Abies balsamea*, West Chester, Pa. According to Saccardo, in Sylloge, found also on various deciduous trees.

87. NECTRIA CORYLI, Fckl.

Perithecia cæspitose, erumpent, smooth, subastomous, dark red, collapsing when dry, not differing in appearance from those of the preceding species, unless in being of a deeper shade of red; asci clavate, 75—100 x 10—12 μ, mostly filled with minute sporidia, exactly as in the preceding species, but some contain cylindric-fusoid (sporidia)? 1-septate, 10—15 x 2½—3 μ, with a short, curved apiculus at each end. These fusoid sporidia, lying in two or three series in the asci, are so arranged with their contiguous ends in contact as to resemble, closely, the cylindrical bodies mentioned in the preceding species and, like those, are often seen filled, more or less completely, with the minute, oblong sporidia. This species is found exclusively on bark and limbs of deciduous trees. According to Dr. Rehm, the specimens in N. A. F., 159, belong here. We are inclined to think that *N. Coryli*, Fckl., is only a form or var. of *N. cucurbitula*, Curr., which is restricted in its habitat to coniferous trees as *N. Coryli* is to deciduous trees. There are three *Nectrias* with the specific name *cucurbitula*, of which the one already described is now recognized by mycologists as *N. cucurbitula*, Curr., while another species (on conifers) with oblong biconoid, 1-septate sporidia is known as *N. cucurbitula*, Tode., and still another, with oblong-fusoid, 5—6-septate sporidia, is known as *Nectria* (*Calonectria*) *cucurbitula*, Fr. We are not aware that these last two species have yet been found in this country.

88. NECTRIA INAURATA, B. & Br.—We have seen no American specimens of this species, and copy the following description from Cooke's Hand-book:

"Cæspitose; perithecia globose, then depressed, at length brown, tinged with red, frosted with yellow; ostiola papilliform, at length impressed, naked, black-brown; asci and sporidia of two kinds—some clavate, with numerous small, curved sporidia, others cylindrical, with eight elliptical sporidia, appendiculate at each end. The larger asci are clavate, containing curved, minute sporidia, not exceeding 3½ μ. The smaller cylindrical asci contain eight elliptical, 1-septate sporidia, 12½—15 μ long, furnished with a delicate, hyaline appendage at each end."

It is to be noted that the above-quoted description of the fruit applies well to that of *N. Coryli*, Fckl., and the specimens of *N. inaurata*, in Saccardo's Mycotheca Veneta, No. 1446 (which are the only ones we have examined), do not differ, as far as we can see, either in the perithecia or the fructification, from the specimens in N. A. F., 159, which (see Dr. Rehm) are *N. Coryli*, Fckl.

B. *Sporidia uniseptate; asci 8-spored.*

89. NECTRIA CINNABARINA, Tode.

Stroma (*Tuberculariа vulgaris*, Tode,) pulvinate, subhemispheric, subcarnose, yellowish, conidiiferous; perithecia cæspitose, vermilion-red, at length darker, rough, with a papilliform ostiolum; asci clavate-

cylindrical, subattenuated above, 75—90 x 8—11 μ; sporidia sub-biseriate, oblong, obtuse at each end, uniseptate, straight or slightly curved, hyaline, 12—15 x 5—7 μ. On limbs of various deciduous trees. Common.

90. NECTRIA RIBIS, Tode.

Stroma and perithecia much the same as in the preceding species, except that the latter are rather smoother and the sporidia mostly longer, 13—20 x 4—6 μ (mostly about 16 x 4—4½ μ). We have examined the specimens in Vize's Micro-fungi Britannici, 153, and in Plowright's Sphæriacei Britannici, 211, and the slight differences indicated above are all we can see to separate this from *N. cinnabarina*. Specimens on gooseberry twigs sent from Canada by Prof. Macoun agree well with the English specimen, only the sporidia are rather narrower, mostly not over 4 or 4½ μ. The Canada specimens are the only ones we have seen collected here, and we do not see it mentioned by Berkeley in his North Am. Fungi in Grevillea.

91. NECTRIA RUBICARPA, Cke. Grev. VII, p. 50.

"Cæspitose, red, scarcely papillate, obtusely verrucose-roughened; asci cylindrical, 65—75 x 6—7 μ; sporidia uniseriate, elliptical, uniseptate, 10—12 x 4—4½ μ, mostly not much constricted. Looks like a miniature red raspberry, both in the clusters and individual perithecia, the latter becoming eventually nearly even." On dead limbs of *Gelsemium*. So. Carolina (Ravenel). In our copy of Rav. F. Am., the specimen (No. 341) has the perithecia distinctly collapsed. In his diagnosis of his *Ascomycetes*, under No. 337, Dr. Rehm refers the specimens of *Nectria puincea*, Kz. & Schm., in N. A. F., No. 80, to *N. rubicarpa*, Ck. We have carefully compared the N. A. F. specimens with *N. rubicarpa*, in Rav. F. Am., and they seem to us to be the same thing. Referring to our exsiccati, we find in Plowright's Sph. Brit., No. 206, a specimen labeled *N. punicea*, Kz. & Schm., in which the perithecia are not collapsed and the sporidia 15—19 x 4—5 μ, which are about the measurements given in Sylloge. The specimen of *N. punicea* in Roumeguere's Fungi Gallici, No., 1465, we can not distinguish from *N. cinnabarina*, Fr. If the specimen of *N. punicea* in Plowright's Sph. Brit. is authentic, the N. A. F. specimens can hardly be that species, having most of the sporidia less than 12 μ long, but the N. A. F. specimens agree better with the original description of *N. punicea* in their collapsed perithecia than do those in Sphæriacei Britannici. We have then, for the present, to leave the matter in doubt. The specimens in N. A. F., 772, do not appear to be *N. rubicarpa*, Cke.

92. NECTRIA COCCINEA, Pers.

Perithecia cæspitose, ovoid, smooth, bright red, papilliform, about one fifth millim. in diam., usually not collapsing, seated on a yellowish, slightly erumpent stroma, which is often nearly obsolete; asci subcylindrical, 80—95 x 6—7 μ; sporidia uniseriate, uniseptate, hyaline or nearly so, scarcely constricted, rather acutely elliptical, 12—15 x 4½—5 μ (12—16 x 5—7, Sacc.) On bark of various deciduous trees. Common.

93. NECTRIA RUSSELLII, B. & C. Grev. IV, p. 45.

"Cæspitose, red, inclining to brown; ostiolum papilliform, at length sunk from collapsing; sporidia cymbiform, uniseptate, 15—20 μ long. On elm, New England, Russell." *Var Magnoliæ*, Sacc., differs somewhat from the type in its shorter (10—11 x 5—6 μ) sporidia, slightly constricted, with the lower cell a little narrower and the perithecia at length collapsing. On bark of *Magnolia*, So. Ca. (Ravenel).

94. NECTRIA OFFUSCATA, B. &. C. Grev. IV, p. 45.

"Cæspitose, dingy, dark, brown-red, minutely granulated, ostiolum depressed; asci clavate; sporidia biseriate, oblong, about one fourth as broad as long; externally resembling *N. Russellii*. On *Hibiscus*. South Carolina."

95. NECTRIA DITISSIMA, Tul.

Perithecia densely gregarious, small, subglobose, bright red, vertically collapsed when prematurely dried; ostiolum papilliform, minute; asci clavate, about 80 μ long and 8—10 μ broad above, contracted below into a slender base; sporidia crowded, biseriate, fusoid-oblong, 1-septate, slightly curved, 14—16 x 4—4½ μ. On dead *Acacia*. So. Ca. (Ravenel), on *Melia*, Louisiana (Langlois).

96. NECTRIA VERRUCOSA, Schw. Syn. N. Am. 1401.

Perithecia cæspitose, ovate-globose, verrucose-roughened, pale red, not collapsing, about ½ millim. in diam., seated on an orange-red, depressed, globose, substipitate stroma (*Tuberculariæ*), forming groups 1—2 millim. in diam.; asci oblong-cylindrical, with a short, substipitate base, 60—70 x 10—12 μ; sporidia biseriate, oblong, uniseptate, 12—16 x 4—5 μ. The stroma, as in most other *Nectrias*, is finally hidden and partially obliterated by the perithecia. Common on *Morus* and Sassafras, Pennsylvania (Schweinitz), on *Morus*, *Melia*, etc., So. Ca. (Ravenel) and on *Morus*, N. Jersey (Ellis). Differs from *N. cinnabarina* in the peculiar roughening of the perithecia and in its shorter asci and mostly narrower sporidia. *N. coccinea* has the perithecia nearly smooth or when dry slightly furfuraceous.

(To be continued.)

NOTES ON FLORIDA FUNGI.--No. 6.

BY W. W. CALKINS, CHICAGO, ILLINOIS.

My observations, thus far, justify the opinion that not many species are to be found in the pine woods section nor on the *genus Pinus*. Even dead trees and limbs are singularly bare of this order. This may be due to the resinous properties of the pine and also to the fact that pine woods are generally open, admitting much light and sunshine. In part, also,

(*From the JOURNAL OF MYCOLOGY, Vol. II, No. 9, September, 1886.*)

SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 80.)

97. NECTRIA CELASTRI, Schw. Syn. N. Am., 1421.

"Stroma tubercularifórm, pale yellowish within, becoming black outside, subpulvinate; perithecia densely cæspitose on the stroma, globose-ovate, corrugate-rugose; ostiola obsolete, but showing as a dark-brown speck, about the size of *S. cinnabarina*, easily falling from the stroma. The perithecia at length become indurated, but do not collapse." Specimens of *Celastrus scandens*, collected in New York State by W. R. Gerard, agree well with the above-quoted characters, except in having the perithecia only one fifth or one sixth millim. in diam. and collapsed. We no not, however, consider this latter character in every case reliable, as it depends, in some measure, on the stage of growth at which the specimens are collected. In Gerard's specimens, the stroma is not well shown, as it is already covered with and partially obliterated by the superimposed perithecia, which are of a bright red color at first, but at length dark red and collapsed, and have the surface subverrucose-roughened. The asci are cylindrical, 55—60 x 6 μ, or sometimes enlarged above to 8 or 10 μ thick; sporidia 1-seriate, elliptical, 1-septate, not constricted, 7—8 x 3½—4 μ. The groups of perithecia are about 1 millim. across. Notwithstanding the slight discrepancies, we are inclined to regard this as the species meant by Schweinitz, who found it rather rare on *Celastrus*, about Bethlehem, Pa. Peck, in 26th Report, also mentions it as found by him at Greenbush, N. Y., but he gives no description of his specimens and we have not seen them.

98. NECTRIA MICROSPORA, C. & E. Grev. V, p. 53.

Cæspitose, bursting out in groups of 3—10 through cracks in the bark; perithecia subglobose, orange-red, smooth, at length collapsing, one sixth to one fifth millim. in diam.; asci cylindrical, 50—60 x 5—6 μ; sporidia elliptical, 2-nucleate, becoming 1-septate, hyaline, 6—7 x 3½—4 μ; groups of perithecia ½—1 millim. across; stroma not conspicuous. On bark of *Magnolia glauca*, Newfield, N. J., July.

99. NECTRIA AUREOFULVA, C. & E. Grev. VII, p. 8.

With the same habit as the preceding species, but perithecia larger (¼ millim.), subglobose, smooth, pale, golden-yellow, with the minute ostiolum darker; asci cylindrical, 50 x 6—7 μ; sporidia biseriate, oblong-fusoid, 8—12 x 3 μ, 2-nucleate, becoming tardily uniseptate; stroma pale, flattish, scarcely rising above the epidermis. On bark of *Magnolia glauca*. Autumn.

100. NECTRIA INFUSARIA, Ck. & Hark. Grev. XII, p. 101.

"Cæspitose, erumpent, pale red; perithecia few, oval, soft-waxy, subconfluent, smooth, glabrous, 5—10 on a stroma; asci cylindrical, 8-spored; sporidia uniseriate, elliptical, obtuse, uniseptate, not constricted, hyaline ('demum pallidis'), 10 x 4½ μ; conidia (*Fusarium Acaciæ*, Ck. & Hark.), either accompanying the perithecia on the same stroma or produced in separate pustules of earlier growth, on a pale red, pulvinate stroma, curved, hyaline, acute at each end, 3-septate, 30—40 x 2½ μ. On *Acacia* twigs, California, (Harkness, Nos. 2162 and 2268), in a quadrisulcate manner as in many *Valsas*. Asci 45—55 x 10—12 μ, oblong-cylindrical, subsessile; sporidia biseriate, oblong-fusoid, hyaline, 3—4-nucleate, becoming uniseptate, 12—16 x 4—5 μ, sometimes constricted at the septum, but mostly not. Some of the perithecia are scattered and stand singly, but, in well-developed specimens, they form dense clusters 1—1½ millim. in diam." This description is taken from the specimens in N. A. F., 773, on *Benzoin*, collected in West Chester, Pa., and agrees fairly with that given by Schweinitz, except that the perithecia are not *polystichous* (lying in several layers), nor are they what would, in a general way, be called *smooth*. They are certainly not glabrous, nor are those of *N. coccinea*, Fr., which are called smooth, but are, at least when dry, distinctly furfuraceous, though not so decidedly so as in this case. Our friend, W. C. Stevenson, Jr., has, however, compared the specimens in N. A. F., 773, with an original specimen of *N. ochroleuca*, Schw., in Herb. Schw., in the Mus. of the Acad. Nat. Sci., at Philadelphia, and says that, outwardly, they appear to be the same, but he did not make a microscopical examination, as the specimen in the Acad. Herb. was very meager. Found, according to Schweinitz, on various deciduous trees, both at Salem, N. C., and Bethlehem, Pa.

101. NECTRIA ATROFUSCA. Schw. Syn. N. Am., 1429.

Stroma pulvinate, subcarnose, wood-color inside, darker outside, small (½ millim. or about that), erumpent through the epidermis, by the ruptured margin of which it is closely embraced; perithecia cæspitose, nearly black, smooth and glabrous, small, mostly less than one sixth millim., conic, becoming ovate and obovate, and finally collapsing above; ostiolum obtuse-conic, black and shining, rather large; asci subcylindrical, 45—55 x 7 μ, with abundant, imperfectly-developed paraphyses; sporidia subbiseriate, oblong-elliptical, lower cell sometimes a little narrower, uniseptate, hyaline, 10—12 x 4½ μ. On dead stems of *Staphylea trifolia*, Bethlehem, Pa. (Schweinitz), West Chester, Pa. (Everhart). The foregoing description is from specimens distributed in N. A. F., 1547, which agree with specimens in Herb. Schw. The groups of perithecia are often arranged in a subseriate manner, are about 1 millim. in diam, and, with the stroma to which they are attached, are finally deciduous.

102. NECTRIA NIGRESCENS, Cke. Grev. VII, p. 50.

"Cæspitose, red, at length turning black, glabrous; ostiolum papilliform; asci cylindrical; sporidia elongated-elliptical, uniseptate, 18 x 6 μ; stylospores on (the same) stroma, some ovate, brown, 5 x 3 μ, others linear, 6 x 2 μ, hyaline. On *Gleditschia*, Aiken, So. Ca. (2564)."

(*From the JOURNAL OF MYCOLOGY, Vol. II, No. 10, October, 1886.*)

SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 99.)

103. NECTRIA CUCURBITULA, Tode.

On bark of *Abies balsamea*, North Elba, N. Y. (Peck.) Cæspitose, erumpent, perithecia ovate-globose, papillate, $\frac{1}{4}$—$\frac{1}{3}$ millim. in diam., bright red, not collapsing, smooth; asci cylindrical, 80—90 x 6 μ; sporidia biconical or acutely elliptical, hyaline, uniseptate, uniseriate, 12—15 x 5—6 μ (14—18 x 6—7 μ, Sacc. in Syll.)

The specimen above quoted and from which these characters were drawn was sent to us as "*N. balsamea*, C. & P.," but can not be that species, which has very different sporidia and collapsed perithecia, but is evidently the *N. cucurbitula*, Tode., as described in Sylloge, II, p. 484, and illustrated in Kunze's Fungi Selecti, No. 105.

NOTE.—When the July number of the JOURNAL was printed, we did not know that this species was found in this country.

104. NECTRIA RHIZOGENA, Cke. Grev. XI, p. 108.

"Cæspitose, erumpent, stromatic, orange-red, at length scarlet; perithecia subglobose, glabrous, scarcely papillate, breaking out into small groups of 10—12 together; asci cylindrical; sporidia narrowly elliptical, uniseptate, hyaline, 8—9 x 3 μ. The conidia are those of *Tubercularia*, with a rose-colored tint and 5 x 2 μ. On exposed roots of *Ulmus*, seaboard of South Carolina (Ravenel). Clusters 1 millim. in diam; perithecia one sixth millim." The specimens in Rav. F. Am., 645, show only the depressed-tuberculariform, flesh-colored stroma and conidia.

105. NECTRIA MUSCIVORA, Berk., in Rav. Fung. Car. I, 57. (*Nectria subcoccinea*, Sacc. & Ell., Mich. II, p. 570.)

Perithecia mostly cæspitose, bright red, subovate, small (one fifth millim.), seated mostly around the margin of the small, pale, tuberculariform stroma, which, together with its group of perithecia, is mostly less than 1 millim. in diam.; asci cylindrical, 75—90 x 8—10 μ; sporidia uniseriate, narrow-elliptical, 14—16 x 6—7 μ, yellowish-subhyaline, becoming 1-septate. On bark of living alder, West Chester, Pa. (Everhart & Haines). Distinguished from *N. coccinea* by its broader, more

obtuse, yellowish sporidia and its more distinctly superficial stroma, which, in some cases at least, seems to arise from the remains of dead scale insects, which are abundant on the bark.

The above description is from the Pennsylvania specimens of *N. subcoccinea*, S. & E., which are the same as the specimens of *N. muscivora*, Berk., cited, which is, presumably, the same as *N. muscivora*, B. & Br., in Cooke's Handbk., No. 2364, though neither the Pennsylvania specimens nor those in Rav. Car. show anything of the "white lanose patches, ½ in. or more in diameter." In Ravenel's specimens, the perithecia are collapsed, the only point in which they differ from the specimens of *N. subcoccinea*.

Perithecia furfuraceous or squamulose. (*Lepidonectria*, Sacc.)

106. NECTRIA APOCYNI, Pk. 26th Rep. N. Y. State Mus., p. 84.

"Cæspitose or scattered, dull red; perithecia minute, pale ochraceous and subglobose when moist, dull red, collapsed or laterally compressed and rough, with minute, whitish scales when dry; ostiola minute; spores biseriate, uniseptate, filiform, usually constricted in the middle, nucleate, .00065—.0008 in. long; conidia subhemispherical or irregular, small, pale red; spores fusiform, straight, .0005—.0006 in. long." Specimens found at Newfield, N. J., July, 1883, on dead stems of *Asclepias tuberosa*, with *Volutella flexuosa*, C. & E., had asci about 35 x 7 μ, sporidia 12—18 x 3½—4 μ, constricted at the septum and nucleate.

107. NECTRIA DIPLOA, B. & C. Jour. Linn. Soc., X, p. 378. Grev., IV, p. 46, var., *diminuta*.

Perithecia cæspitose, minute, ovate, subfurfuraceous, at length collapsing, light red, parasitic on some erumpent *Valsa*?; asci subsessile, oblong-cylindrical, about 65 x 10 μ; sporidia obliquely uniseriate, oblong-elliptical, endochrome finally divided in the middle, 20—25 x 8—9 μ, hyaline or nearly so. In some of the asci, the sporidia are partially biseriate and somewhat smaller. On bark of alder. So. Ca. Ravenel. The description here given is from an examination of the specimens in Rav. Fungi Caroliniani, III, 55. In these specimens, the nuclei have disappeared. The underlying (*Valsa*)? is so completely covered by the perithecia of the *Nectria* as to be easily overlooked.

108. NECTRIA DEMATIOSA, Schw. Syn. N. Am., 1424.

"Frequent on branches of *Platanus* and *Morus*, Bethlehem, Pa. Allied to *N. cinnabarina*, but much smaller. Cæspitose, erumpent, seated on a flattened stroma; perithecia few, globose, subglabrous, red, becoming dark, indistinctly ostiolate, collapsing, covered with subpellucid dematiose hairs. The perithecia readily fall out, leaving little pits. The clusters of perithecia scarcely exceed half a line in diameter." In Grev., IV, p. 16, the sporidia are said to be "oblong, uniseptate, slightly curved. .00085—.00057 inch long."

(*From the JOURNAL OF MYCOLOGY, Vol. II, No. 11, November, 1886.*)

SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

109. NECTRIA TREMELLOIDES, E. & E. On bark of dead willow, Plaquemines county, La., July, 1886. Langlois, No. 592.

Perithecia gregarious, ovate, 300 μ in diam., coarsely furfuraceous and subtuberculose-roughened, pale orange, with a distinctly papilloseconic ostiolum; asci about 50 x 7—8 μ, cylindric-clavate, sessile, imperfectly paraphysate; sporidia biseriate, oblong-elliptical, 2-nucleate, becoming 1-septate, 8—12 x 3—4 μ, hyaline. The asci are contracted at the apex into a short truncate apiculus.

110. NECTRIA OCHROLEUCA, Schw. Syn. N. Am., No. 1418. On limbs of various deciduous trees, Carolina and Pennsylvania (Schweinitz). On dead limbs of *Laurus Benzoin*, West Chester, Pa. (Everhart). N. A. F., 773.

Stroma granulose-byssoid, subpulvinate and nearly white at first, becoming firmer and yellowish; perithecia 3—15 on a stroma, ovate-globose, dull yellowish-white, mostly less than one third millim. in diam., surface densely furfuraceo-squamulose, except at the apex, around the rather darker, slightly-depressed, papilliform ostiolum, where the edge of the squamulose coat forms a miniature crown or wreath, giving the apex of the perithecium the appearance of the blossom end of an apple, or sometimes the scaly coating is divided in a substellate-cleft fashion as in some *Valsas;* asci clavate-cylindrical, 45—55 x 10—12 μ; sporidia biseriate, oblong-fusoid, 1-septate, 12—16 x 4—5 μ.

Mr. Wm. C. Stevenson, Jr., has compared the N. A. F., specimens with those in Herb. Schw., and finds them the same.

NOTE.—The portion of description of *Nectria infusoria*, Cke. & Hark. (No. 100), on page 98, beginning in the eighth line as follows: "in a quadrisulcate manner," &c., and continuing to end of same paragraph, was originally intended to form a part of the description of *N. ochroleuca*, Schw., but became misplaced. It should therefore be removed from page 98.

C. *Sporidia pluriseptate.*

111. NECTRIA BALSAMEA, C. & P. Grev. XII, p. 81. On *Abies balsamea*, North Elba, N. Y. (Peck).

"Cæspitose, erumpent, suborbicular; perithecia small, smooth, scarlet, papillate, at length collapsing, crowded on a pale stroma; asci cylindric-clavate, 8-spored; sporidia fusiform, 5-septate, hyaline, (.03 x .077 millim.) ".077" is apparently a typographical error for .0077. The specimens of this species sent us by Prof. Peck are, as stated elsewhere, *N. cucurbitula*, Tode., so that we can only copy the description in *Grevillea*, and this

agrees so well with that of *N. cucurbitula*, Fr. (Syll. II, p. 543), that it may reasonably be suspected that this is, in reality, that species and that the measurement of the sporidia, ".03 x .077," is erroneous.

112. NECTRIA AURIGERA, B. & Rav. Grev. IV, p. 46. Rav. Fung. Car. V, 60. Ell., N. A. F., 79. On *Fraxinus* and *Chionanthus*.

Erumpent, cæspitose, stroma pale brick-red, mostly subelliptical, perithecia globose, about one third millim. in diam., covered with a yellow powder; ostiolum papilliform, collapsing; asci sublanceolate, 55—60 x 12—15 μ; sporidia subbiseriate, oblong cylindrical, straight or slightly curved, yellowish, 6—8-septate, 20—24 x 5—6 μ. Var. *flavitecta*, B. & C. (Grev. l. c.), on *Kerria Japonica*, has the "sporidia larger and quadriseptate, sometimes with a gelatinous coat." Probably not distinct from the next.

113. NECTRIA POLYTHALAMA, Berk. Fl. New Zealand II, p. 203. Grev. IV, p. 46.

The specimens of this species in Rav. Fungi Car. III, 54 (on *Frax nus*), differ from the preceding species only in the absence of the yellow powder on the perithecia. This is also wanting on some specimens of *N. aurigera*, the perithecia, in that case, being of the same dull red as in this species. There is no shadow of difference in the asci and sporidia, at least as the two are represented in Rav. Fungi Car., and if, as there is no reason to doubt, the specimens there distributed are authentic, the two species are the same, and, in that case, the specific name, *polythalama*, would have precedence.

114. NECTRIA CANADENSIS, E. & E. Bull. Torr. Bot. Club XI, p. 74. On bark of dead elm, Ottawa, Canada. Macoun, No. 225 and 311.

Perithecia cæspitose, ovate-globose, $\frac{1}{4}$—$\frac{1}{3}$ millim. in diam., dull red, densely tuberculose-granular; ostiola not prominent, more or less distinctly stellate-cleft and finally collapsing slightly; asci sublanceolate, 75—80 x 10—12 μ, without any distinct paraphyses; sporidia subbiseriate, hyaline, oblong-elliptical, 3-septate, slightly curved, ends obtuse, 18—22 x 7—9 μ. The conidial stage is a *Tubercularia* about two millim. high, bursting out in a seriate manner through cracks in the outer bark, having an orange-red head and brick-red, stipitate base. From the basal or medial part of the stipitate base, perithecia originate and finally entirely surround and overtop the orange-colored heads of conidia, which are either entirely hidden or remain partially visible in the midst of the dense clusters of perithecia; conidia oblong-cylindrical, hyaline, continuous, 5—7 x 2$\frac{1}{2}$ μ.

D. *Sporidia muriform.* (*Pleonectria*. Sacc.)

115. NECTRIA BEROLINENSIS, Sacc. Mich. I, p. 123. (*Nectria Ribis*. Niessl., non Tode. *Pleonectria Ribis*, Karst.) On dead stems of *Ribis*. Massachusetts (Farlow), Michigan (Spalding), Wisconsin (Trelease), Canada (Poe).

Perithecia erumpent-superficial, cæspitose, globose-depressed, $\frac{1}{8}$—$\frac{1}{4}$ millim. in diam., finally collapsing to cup-shaped, of a brick-red color and loosely-cellular structure; ostiolum not prominent; asci cylindrical,

subsessile, 90—115 x 10—14 μ, subtruncate above; sporidia uniseriate, oblong-elliptical, obtuse at each end, 5—7-septate and muriform, not constricted, minutely guttulate, hyaline, 16—22 x 7—8 μ.

We are allowed to add the following notes from Dr. W. G. Farlow, who writes us that No. 6140, collected in Canada by Poe and marked in the Curtis collection, *Nectria fenestrata*, B. & C., but in Grevillea IV, p. 46, referred to *Sphærostilbe pseudotrichia* (Schw.), though evidently the same as the specimens collected by him in Massachusetts and distributed in N. A. F., No. 470, is different from authentic specimens of *Sphæria pseudotrichia*, Schw. (from Surinam), which, besides its peculiar-shaped conidia, has the ascospores larger, about 38 μ, with a crenulated outline.

GEN. VIII, BYSSONECTRIA, Karsten.—Stroma more or less byssoid; perithecia subsuperficial, crowded; sporidia (in the American species) hyaline.

* *Sporidia continuous.*

116. BYSSONECTRIA FIMETI, Ck. Grev. XI, p. 108. Rav. F. Am., 646. On cow dung, Aiken, S. C. (Ravenel).

Perithecia gregarious or scattered, golden yellow, subglobose, seated on a byssoid, golden-yellow stroma, bare and glabrous above, tomentose below; asci cylindrical; sporidia elliptical, continuous, hyaline, 15 x 8 μ.

* * *Sporidia uniseptate.* (*Hyphonectria*).

117. BYSSONECTRIA CHRYSOCOMA, Ck. & Hark. Grev. XII, p. 101. On wood of *Eucalyptus*, California. Harkness, 2321.

Stroma fibrose-byssoid, golden yellow, effused; perithecia gregarious, minute (1—1½ millim.), obovate, thin (tenuibus), dark yellow, semi-immersed in the stroma; asci clavate, 8-spored; sporidia biseriate, narrowly-elliptical, uniseptate, hyaline, 10 x 2—2½ μ.

118. BYSSONECTRIA ROSELLA, Ck. & Hark. Grev. l. c. On dead grass, California. Harkness, No. 2441.

Delicate, effused, with a rose-colored tint; hyphæ creeping, interwoven, with the minute, obscure perithecia scattered on it; conidia lunate, like those of *Fusarium*, acute at each end, 5-septate, mostly nodulose and hyaline, 40 x 5—6 μ. Unfortunately, in an immature condition.

GEN. IX, DIALONECTRIA, Sacc. (in part).— Perithecia free, superficial, gregarious or scattered, carnose, glabrous, bright-colored.

A. *Sporidia continuous.* (*Nectriella.*)

119. DIALONECTRIA VULPINA, Ck. Grev. XII, p. 83. Ell. N. Am. Fungi, 774. On rotten wood of maple and apple tree, New Jersey and Pennsylvania.

Perithecia gregarious or scattered, light yellow, about one half millim. in diam., globose at first and thinly clothed with short, erect, subglandular hairs and subfurfuraceous, finally collapsing so as to be easily mistaken for a *Peziza;* asci clavate-cylindrical, 35—45 x 6—7 μ, 8-spored; sporidia either biseriate, 8—11 x 3—3½ μ or obliquely uniseriate, 8—12 x 4—4½, elliptical or oblong-elliptical, 2—4-nucleate, with some sporidia in old specimens, becoming uniseptate.

120. Dialonectria mycetophila, Pk. 26th Rep. N. Y. State Mus., p. 85. On decaying fungi, New Scotland, N. Y. (Peck).

"Perithecia crowded or scattered, minute, smooth, subglobose, pale yellow when young, then pinkish-ochre; ostiola minute, papillate, distinct, darker-colored; asci subclavate; sporidia oblong, simple, 12—13 x 4 μ."

B. *Sporidia uniseptate.* (*Eu-Dialonectria.*)

(a.) *Growing on wood or bark.*

121. Dialonectria sanguinea (Sibth.) Fr. Sum. Veg. Scand., p. 388. Fr. S. M. II, p. 453.

Perithecia scattered, adnate, ovoid, rarely subsphæroid; ostiolum papilliform, smooth, blood-red, rarely flesh-color, soft, about 180 μ in diam.; asci cylindrical, 50—60 x 5—6 μ, 8-spored; sporidia obliquely uniseriate, elliptical or subelliptical, unequally 1-septate, slightly constricted, hyaline or with slight tinge of rose-color, 7—10 x 4—5 μ. Common on moist decaying wood and bark of various deciduous trees. Saccardo properly observes that this scarcely differs from *N. episphæria*, Fr, except in its ovoid, scarcely collapsing perithecia and its less distinctly septate sporidia.

122. Dialonectria Peziza (Tode.) Fr. Summ. Veg. Scand.. p. 388. On decaying wood and bark. South Carolina (Ravenel), Massachusetts (Murray). See Grev. IV, p. 16.

Perithecia gregarious, superficial, spherical, becoming concave by collapsing, subpapillate, reddish-orange, fading at length, subpilose at base, soft, about one third millim. in diam.; asci very shortly pedicellate, cylindrical or clavate-cylindrical, 80—90 x 8—10 μ when young, subcristate at the apex, 8-spored; sporidia subuniseriate, elliptical, obtuse at each end, uniseptate, but not constricted, each cell nucleate, hyaline, 10—14 x 5—6 μ.

123. Dialonectria truncata (Ell.) Am. Nat., February, 1883, p. 194. N. A. F., 1332. On the inside of white cedar bark, stripped from the living tree and left lying on the ground. Newfield, N. J., Sept., 1882.

Perithecia gregarious, minute (one eighth to one sixth millim.), flesh-color, subglobose or ovate, the apex flattened into a circular, granular-roughened disk, with the edges lightly projecting; ostiolum in the center of the disk, minute, papilliform, brown; asci sublanceolate, 35 x 5 μ; sporidia biseriate, oblong-fusiform, subhyaline, uniseptate and slightly constricted around the middle, 11—13 x 2½—3 μ.

124. Dialonectria Umbellulariæ (Plow. & Hark.) Trans. Cal. Acad. Sci., 1884, p. 26. On *Umbellularia*, California (Harkness, No. 2882).

Perithecia superficial, scattered, 200—230 μ in diam., globose, subhyaline, with a pale tinge of flesh color, beset with a few hyaline, mycelial threads externally; ostiola obtuse; asci clavate. 50 x 10—15 μ; sporidia hyaline. ovate, uniseptate. 10—12 x 5—8 μ.

(*From the JOURNAL OF MYCOLOGY, Vol. II, No. 12, December, 1886.*)

SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 125.)

125. DIALONECTRIA DISPERSA (C. & E.) Grev. V, p. 33. On (pine)? bark, Maine. Rev. Joseph Blake.

Perithecia widely scattered, ovate, papillate, light red, about one half millim. high, sparingly clothed with pale, weak, glandular hairs; asci cylindrical, 70—80 x 10—12 μ; sporidia subbiseriate or obliquely uniseriate, oblong-elliptical or almond-shaped, often more prominent on one side, 18—22 x 7—10 μ, ends subacute while lying in the asci, rounded when free, 2—4-nucleate, becoming uniseptate. Cooke finds triseptate, curved conidia 50 μ long. We have not seen them.

126. DIALONECTRIA VITICOLA (B. & C.) Grev. IV, p. 45. "On branches of vine, Alabama. Peters, No. 5225.

"Scattered, bright crimson, soft, collapsing laterally, seated on a thin, white mycelium; sporidia uniseriate, elliptical, uniseptate." In Grev. XII, p. 82, Cooke gives the measurements of the sporidia as 10 x 4 μ.

127. DIALONECTRIA EUCALYPTI, Ck & Hark. Grev. XII, p. 82. On bark of *Eucalyptus* branches, California (Harkness).

Scattered, superficial, pale; perithecia globose, at length subdepressed (2 millim.), at first beset with papillose, hyaline hairs, finally bare; asci clavate, 8-spored; sporidia lanceolate, uniseptate, not constricted, hyaline, 16—18 x 4 μ.

128. DIALONECTRIA SQUAMULOSA (Ell.) Bull. Torr. Bot. Club IX p. 20. On decaying wood of a fallen limb, Newfield, N. J., November, 1881.

Gregarious, minute (75—100 μ), pale, ovate-globose, covered, except the brownish, obtuse, slightly prominent ostiolum, with a light-colored, squamulose coat; asci lanceolate, narrowed and subtruncate above, 25—30 x 5—6 μ, containing eight clavate or cylindric-oblong, biseriate sporidia, 5—6 x 1½—1¾ μ, 2-nucleate at first and probably becoming uniseptate.

(b.) *Growing on herbaceous stems, or leaves, fruits, etc.*

129. DIALONECTRIA BRASSICÆ (Ell. & Sac.) Mich. II, p. 374. On dead cabbage stalks left in the ground over winter and on old potato stems, Newfield, N. J., July, 1880 and 1881.

Perithecia densely gregarious, globose-conoid, not collapsing, very small (⅛ millim.), blood-red, ostiolum rather obtuse-conic, texture loosely-cellular, rose-tinted, those around the ostiolum paler; asci clavate-cylindrical, 60 x 7—8 μ, without paraphyses, briefly-stipitate, obtuse at the apex, containing eight oblong, subclavate, hyaline, uniseptate, 10—11 x 4—4½ μ sporidia. This was first found on the cabbage stalks and at about the same time next year on old potato stalks lying scattered over the same ground previously occupied by the cabbages. None could be found on any potato stalks in any other part of the field.

130. DIALONECTRIA THUJANA (Rehm.) Ascom., No. 338. Sacc. Syll. II, p. 493. On dead foliage of white cedar not yet fallen from the branches of a tree cut some time previously, Newfield, N. J. (November, 1875.)?

Perithecia very minute, scarcely visible to the naked eye, solitary or 2—3 together, conic-globose, slightly depressed at the apex, purplish-red; asci oblong-ell ptical, 60—80 x 10—14 μ, with eight biseriate, oblong, two-celled, hyaline sporidia, slightly constricted in the middle and about 11 x 7 μ, becoming at length subfuscous.

131. DIALONECTRIA DEPALLENS, Ck. & Hark. Grev. XII, p. 82. On stems of *Lupinus*, California. Harkness, No. 2432.

Scattered or gregarious, superficial, brick-red, fading out; perithecia subglobose, smooth, bare, opaque (one fifth to one fourth millim.); asci clavate, 8-spored; sporidia lanceolate subacute at each end, uniseptate, not constricted, hyaline, 22—24 x 4—4½ μ.

132. DIALONECTRIA DEPAUPERATA (Cke.) Grev. VII, p. 50. On *Yucca aloifolia*, Aiken, So. Car. Ravenel, No. 2564.

Perithecia globose, scarlet, scarcely papillate, 1—3 in a stroma (*Fusarium Yuccæ*); asci clavate; sporidia elliptical, uniseptate, 10 x 3½ μ; stylospores fusiform, curved, acute at each end, 25 x 3 μ. We have never seen the original specimens on *Yucca* and have copied the foregoing from Grevillea.

The specimens in N. A. F., 677, on *Clethra* (or *Andromeda?*) were submitted to Dr. Cooke, who remarked that they did not differ, either in habit or in fruit, from his *Nectria depauperata*, though on a very different host plant. From an examination of these specimens, we add the following notes: Perithecia ovoid globose, small (160–190 μ), pale and furfuraceous at first, becoming bare and pale red; ostiolum papillate and slightly darker; asci clavate-cylindrical, 35—40 x 4 μ, sessile; sporidia oblong-elliptical, subbiseriate, 9—11 x 3—3½ μ. There are often six and even ten perithecia on each erumpent, white, byssino-grumose stroma.

133. DIALONECTRIA GALII, Plow. & Hark. Trans. Cal. Acad. Sci., 1884, p. 26.

Perithecia scattered, immersed, then erumpent, obtuse, pale-red; asci cylindrical, very delicate, 60 x 5—8 μ; sporidia eight, uniseriate, uniseptate, pale straw-color, oblong-oval, with bluntly-pointed ends. On *Galium trifolium*, California. Harkness.

134. DIALONECTRIA PEPONUM (B. & C.) Grev. IV, p. 16. *Nectria perpusilla*, B. & C. Rav. Fung. Car. Exsic. IV, p. 51. On dead gourds and on tomato, So. Car. Ravenel.

Very small, scattered, scarlet; sporidia oblong, uniseptate. It looks at first sight as if seated on a smooth, white mycelium, but it is only the external coat of the gourd. Var. *aurelia* (l. c.), having sporidia continuous, is probably only the immature state of the same thing.

We add the following from an examination of the specimen in Ravenel's Exsiccati, above quoted: Perithecia depressed globose, 100—120 μ in diam., ostiolum broad, papillate; asci clavate-cylindrical, 35—40 x 5—6 μ: sporidia not well matured, but apparently about 10 x 3½ μ.

135. DIALONECTRIA CONIGENA (E. & E.) Bull. Torr. Bot. Club X, p. 77. On an old decaying cone of *Magnolia glauca*, Newfield, N. J., October.

Minute, membranaceous, smooth, orange yellow, lighter and collapsing when dry; asci about 50 x 7 μ; sporidia uniseriate or partially biseriate above, acutely elliptical, 2-nucleate, becoming uniseptate, 7—8 x 3—3½ μ; ostiolum papilliform, minute; perithecia with a few weak, white, radiating hairs at the base. Differs from *N. vulpina*, Cke., in its habitat, smaller and paler perithecia and rather narrower and more acute sporidia.

(c.) *Growing on cryptogamous plants.*

136. DIALONECTRIA EPISPHÆRIA (Tode.) Fr. Summ. Veg. Scand., p. 388. On various *sphæriaceous* fungi — *Diatrype*, *Hypoxylon*, *Valsa*, etc. common.

Perithecia gregarious or scattered, superficial, subsphæroid, collapsing and frequently subcompressed, soft, smooth, blood-red, about 180 μ in diam., with a papilliform ostiolum; asci cylindrical, 50—60 x 5—6 μ, 8-spored; sporidia obliquely uniseriate, subellipsoid, rather unequally uniseptate, hyaline, slightly constricted, 7—10 x 4—5 μ.

137. DIALONECTRIA FILICINA, Ck. & Hark. Grev. XII, p. 101. "On stipes of tree fern, California (Harkness.)

"Scattered or gregarious, orange-colored; perithecia obovate, smooth, glabrous, subshining, scarcely papillate; asci cylindrical, 8-spored; sporidia elliptico-cylindrical, obtuse at each end, hyaline, 8 x 2½ μ." Our specimens from Dr. Harkness have the asci about 40 x 5 μ; sporidia mostly biseriate, 3—4-nucleate, becoming uniseptate, 7—10 x 2½—3 μ.

C. *Sporidia elongated, guttulate or septate.* (*Calonectria.*)

138. DIALONECTRIA CURTISII, Berk. Grev. IV, p. 46. On *Zea*, So. Car. Ravenel.

"Minute, erumpent, scattered; asci lanceolate; sporidia oblong, curved, with four nuclei, 12 x 2 μ." We have seen no specimens of this.

139. DIALONECTRIA CHLORINELLA, Cke. Grev. XI, p. 108. Rav. F. Am., 736. On bark of *Ulmus*, seaboard of So. Car. Revenel.

Scattered, superficial, globose, lemon-yellow; perithecia woolly-tomentose, papillate, with ostiolum bare; asci clavate; sporidia elongated-elliptical, obtuse at each end, straight, or a little curved, 1—3-septate, hyaline, 18—20 x 5 μ. This species also ranges northward. It has been found on blackened wood of decaying oak limbs and on wood of *Rhus*, at Newfield, N. J., and has also been sent on rotten wood from Canada by Prof. Macoun. Prof. C. H. Peck has also found it in New York state. It might, with propriety, be placed in the genus *Lophiostoma*, as it has the peculiar compressed ostiolum of that genus and its sporidia are also indicative of that relationship. The specimens in our copy of Rav. F. Am. are immature, though evidently the same as the Newfield and Canada specimens. The latter have the sporidia fusiform, slightly curved, subhyaline, 1—3-septate and constricted at the middle septum, 25—35 x 7—8 μ—very few less than 30 μ long; asci 100—120 x 12—15 μ, with abundant paraphyses. Really this should be placed in *Lophiostoma*.

140. DIALONECTRIA ERUBESCENS (Desm.) Sacc. Syll. II, p. 545. On the under side of living leaves of *Quercus laurifolia*, *Myrica cerifera* and *Olea Americana*, Florida (Dr. Martin and W. W. Calkins). Mostly on mycelium of *Meliola*.

Scattered or gregarious, superficial, with white, wooley, radiating hairs at base; perithecia minute, pale red, globose, finally collapsing, soft, glabrous, with a papilliform ostiolum; asci clavate, 35—40 x 7—8 μ; sporidia oblong-fusoid, straight or slightly curved, hyaline, 3—4-nucleate, becoming 1—3-septate, ends subacute (10 x 3 μ, Sacc.) Specimens on *Olea* have the sporidia 12—16 x $2\frac{1}{2}$—3 μ. *Calonectria leucorrhodina* (Mont.), Sacc. Syll II, p. 548, according to So. American specimens from Spegazzini, scarcely differs from this, except in its epiphyllous growth.

141. DIALONECTRIA DIPLOA, B. & C., var. *diminuta*. Grev. IV, p. 46. On some sphæria, on alder, So. Car. Ravenel.

"Very minute, scarlet; asci lanceolate, but obtuse; sporidia sometimes larger, binucleate, at length uniseptate, in one row, or smaller, biseriate, quadrinucleate, 25—30 μ long."

142. DIALONECTRIA FULVIDA, E. & E. Journ. Mycol. I, p. 140. On bark of decaying oak limb lying on the ground, Newfield, N. J., Oct. 7th, 1885.

Perithecia superficial, gregarious, subglobose, small (one sixth millim.), tuberculose-squamulose, light yellow, collapsing when dry; ostiolum large, but not prominent; asci oblong-cylindrical, nearly sessile, obtuse, about 75 x 10—12 μ, surrounded by indistinct paraphyses; sporidia eight in an ascus, fusiform, hyaline or nearly so, slightly curved, 38—50 x 3—$3\frac{1}{2}$ μ, tapering from the middle to each end, nucleate, becoming about 8-septate. The specimens were growing on the bark of an old swelling caused by *Dichæna strumosa*, Fr.

143. DIALONECTRIA COCCICOLA, E. & E. Journ. Mycol. II, p. 39. On scale lice on bark of living orange trees, Florida. Com. Prof. F. L. Scribner.

Perithecia cæspitose, membranaceous, about one third millim. in diam. and one half millim. high, flesh color, becoming dirty buff when mature, obovate, astomous, surface roughish, with a few scattered, white, rudimentary hairs, or at length bald; asci clavate-cylindrical, 150—190 x 20 μ, with abundant, rather stout paraphyses; sporidia eight in an ascus, clavate-cylindrical, multinucleate, hyaline, 110—140 x 6—7 μ at the upper end, attenuated below. The groups of perithecia are seated either on the shells of dead insects or on the bark itself, with a subiculum more or less distinct, composed of white, decumbent or prostrate hairs of the same character as those found on the perithecia themselves. The species seems to be quite distinct from any of those described under the subgenus *Ophionectria*, where this belongs.

144. DIALONECTRIA FIBRISEDA, Schw. Syn. N. Am., 1542. Among the loosened fibres of chestnut bark, Bethlehem, Pa. (Schweinitz). Allied to *Nectria sanguinea*.

Very minute, scattered, blood-red, pellucid, globose-ovate, papillate, adhering in dense clusters to the fibres of (dead) chestnut limbs from which the epidermis has peeled off, entirely glabrous, finally collapsing, scarcely visible to the naked eye. Of this species, nothing is known to us except the description above quoted.

Cooke, in his synopsis, mentions a *Nectria Smilacis*, Sz. We find no such species in Schw. Synopsis.

JOURNAL OF MYCOLOGY.

Vol. III. MANHATTAN, KANSAS, JANUARY, 1887. No. 1.

SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Concluded.)

GEN. X, LASIONECTRIA, Sacc.—Perithecia hairy.

145. LASIONECTRIA POLIOSA, E. & E. Parasitic on *Diatrype platystoma*, Schw., Florida, January, 1886. W. W. Calkins, No. 138. Journ. Mycol. II, p. 39.

Perithecia scattered, membranaceous, orange red, ovate-globose, one sixth millim. in diam., sparsely clothed, except the papilliform ostiolum, with straight, spreading, hyaline, septate, glandular hairs, about equal in length to half the diameter of the perithecia; asci sessile, oblong-cylindrical, about 75 x 12 μ; sporidia biseriate, oblong or subfusiform-oblong and subinequilateral, hyaline, uniseptate and slightly constricted at the septum, containing several nuclei irregularly placed, 18—22 x 7—8 μ, ends rounded or subacute. The hairs which clothe the perithecia are at first about seven μ thick, with the ends obtuse and a little swollen, but at length they become elongated and attenuated above. This must be nearly allied to *N. tephrothele*, Berk., but in the description of that species the perithecia are not described as hairy.

146. LASIONECTRIA LASIODERMA (Ell.) Am. Nat., February, 1886, p. 194. Parasitic on old *Valsa lutescens*, Ell.. on dead limbs of *Quercus coccinea*, lying on the ground, Newfield, N. J., June, 1882.

Perithecia mostly single, subamorphous, obtuse-conic, broadly perforated above, about one fourth millim. high, shaggy with short, septate, obtuse, imperfectly-developed hairs, dull red when dry, pale orange when moist; asci cylindrical, 75—80 x 7—8 μ; sporidia uniseriate, elliptical, hyaline, uniseptate, scarcely constricted, 11—12 x 4—5 μ.

147. Lasionectria Rexiana (Ell.) l. c. Parasitic on *Myxogasters* (*Chondrioderma spumarioides*), Adirondack Mts., N. Y., August, 1882. Dr. Geo. A. Rex.

Perithecia minute, less than one fourth millim. in diam., flesh-color, becoming darker, slightly compressed laterally, enveloped in white down, which forms little tufts, appearing under the lens like some minute, tufted, mucedinous growth; asci linear, 35—40 μ long, evanescent; sporidia uniseriate, oblong, hyaline, 1—2-nucleate (becoming uniseptate?).

Gen. XI, Gibberella, Sacc.—Perithecia superficial, smooth, bluish or violet.

148. Gibberella pulicaris (Fr.) S. M. II, p. 417.

Cæspitose, stroma cortical; perithecia crowded, superficial, purplish, at length collapsing or laterally compressed; asci oblong, sessile, 8-spored, 60—75 x 12—16 μ; sporidia biseriate, ovate, elliptical or subpyriform, subobtuse, somewhat curved, 3-septate, pale yellowish, 18—20 x 6—8 μ. The conidial stage is considered to be *Fusarium sambucinum*, Fckl., or *F. roseum*, Lk. This is quite a common species and is found on bark of dead limbs of various deciduous trees and on dead herbaceous stems—especially on dead stalks of *Zea Mays* and also on the grain.

149. Gibberella Saubinetii, Mont. Sacc. Syll. II, p. 554.

Perithecia gregarious, confluent-cæspitose and concrescent, coriaceo-membranaceous, verrucose, at length flaccid, plicate, ovoid, subcontracted at the base, bluish, 200—300 x 170—220 μ, papillate; asci oblong-lanceolate, acuminate above, contracted at the base into a short, thick stipe, 8-spored, 60—76 x 10—12 μ; sporidia uniseriate or subbiseriate, fusiform, curved or straight, subacute, 3-septate, but scarcely constricted, nearly hyaline, 18—24 x 4—5 μ; conidial stage, *Fusarium roseum*, Lk. The characters of this species, as here given, are taken from Sacc. Sylloge. From the specimens at our command, we have always found it difficult to separate this from the preceding species.

Gen. XII, Hyponectria, Sacc. Syll. II, p. 455—Perithecia covered, otherwise as in *Nectria*.

150. Hyponectria Gossypii (Schw.) Syn. Car., No. 207. On dead capsules of cotton plant, Carolina (Schweinitz).

Scattered, rather soft, immersed, perithecia globose, purplish flesh-color; ostiolum elongated to the surface and discharging gelatinous matter. The minute perithecia are deeply sunk in the substance of the immature capsules so as not to be seen unless the capsule is cut open, but, through the elongated ostiola, a gelatinous substance is discharged, which hardens on the surface of the capsule and gives it a purplish color. In the mature specimens the surface of the capsules is granulose or papillose from the subjacent perithecia. We have seen no specimens of this species, but we have received from Prof. F. L. Scribner a *Fusarium* on capsules of cotton from South Carolina, which may be the conidial stage.

GEN. XIII, SPHÆROSTILBE, Tul. Carp. III, p. 103.—Perithecia associated with or growing at the base of the conidiophorous fungi (*Stilbum sp.*), otherwise as *Nectria*.

151. SPHÆROSTILBE FLAMMEA, Tul. l. c.

Perithecia globose, bright red, nearly smooth, crowded on and near the conidiophorus stroma (*Atractium flammeum*, B. & Rav.); asci obovate-oblong, 8-spored; sporidia ovate, obtuse, 1-septate, hyaline, slightly constricted, 12—16 x 5—6 μ. The conidial fungus, as represented in Rav. Fungi Car. V, 86, has the stromata at first narrow-conical, becoming finally flattened above and subpezizoid. The conidia linear-lanceolate, very large (80—100 x 6½ μ, a little curved, 6—9-septate, hyaline, with a tinge of rose color. On maple bark, Carolina (Ravenel); on *Salix*, Louisiana, Langlois, No. 377. Berkeley, in Grev. IV, p. 47, adds: "There is a very distinct species on *Magnolia glauca*, Car. Inf., No. 5005 (*Atractium pallidum*, B. & C.), with short, fusiform spores 13 μ long, with the endochrome retracted to either end."

152. SPHÆROSTILBE COCCOPHILA, Tul. l. c.

Perithecia numerous, on and near the conidiophorous stromata, very small, globose, obtuse, minutely papillate, very smooth, bright red, often 4—5 together, collapsing when old; asci linear, 60—80 x 6½ μ; sporidia oblique, 1-seriate, ovate, 10 x 5 μ, 1-septate, subhyaline, slightly constricted. The conidial stage (*Microcera coccophila*, Desm., which has been sent from Florida by Dr. Martin and collected in Carolina by Mr. Ravenel (F. Am., 286), has the stroma arising from various species of dead bark lice. It is red, obtuse and about two millim. high. The conidia are linear-lanceolate, 5—7-septate and 55—65 x 5—6 μ, nearly hyaline.

153. SPHÆROSTILBE GRACILIPES, Tul. l. c.

Perithecia collected at the base of the stilbum, small (one third millim.), red, light pruinose, fading out; asci cylindric-clavate; sporidia uniseriate, ovoid, 12—16 x 4½—6 μ. The conidiophorous fungus (*Stilbum corynoides*, E. & E.) has the stem slender, gray, becoming nearly black, ¼—½ cm. long, head globose ¼—½ millim.), orange-yellow, becoming fuscous; conidia oblong-elliptical, hyaline, 5—6 x 1½ μ. On *Hibiscus*, *Carya*, *Melia* and *Platanus*, Carolina (Curtis and Ravenel); on *Melia*, Louisiana (Langlois).

154. SPHÆROSTILBE CINNABARINA, Tul. l. c.

Perithecia growing at the base of the conidiophorous stroma (*Stilbum cinnabarinum*, Mont.), few, sessile, globose, scarcely papillate, very smooth, orange-red, finally collapsing partially; asci clavate-oblong, 80 x 13—16 μ; sporidia biseriate, ovate-oblong, 22—26 x 7 μ, plurinucleate; conidial stroma bacillary, clavate above, red, conidia ovoid, small, 3½ x 1½ μ. On trunks of *Carya*, *Morus* and *Rhus*, Carolina (Ravenel), Louisiana (Hale).

Gen. XIV, Melanospora, Ca.— Perithecia simple, ostiolum subulate-rostrate, often divided and brush-like (penicellate) at the tip; sporidia fuscous, distinguished from *Ceratostoma* by the soft texture of the perithecia.

155. Melanospora lagenaria (Pers.) On the hymenium of some old *Polyporus*, Adirondack Mts., N. Y. Peck, in 27th Rep. N. Y. State Mus., p. 110.

Perithecia scattered or gregarious, emergent at length and bare, sphæroid or subovoid, two fifths millim., rugulose, at first light tawny-yellow, finally liver-color and then black; beak straight or flexuous, attenuated above, same color as perithecium and many times longer; asci pedicellate, broad-clavate, 35—40 x 12—14 μ, 8-spored (also 4-spored, sec. De Not); sporidia in three series above, ellipsoid, attenuated at each end, simple, hyaline, becoming subfuscous, 11—12 x 6 μ. The foregoing is from Sacc. Syll. Prof. Peck says: "Asci very broad, delicate, fugacious; spores crowded, simple, elliptical, colored, 12—13 x 7½ μ." He also adds: "The spores are sometimes found adhering in a mass to the apex of the long, slender ostiolum. The subicular tomentum is present in some of the specimens, and there is sometimes a hairy appearance to the perithecia, which seems to be due to this tomemtum or to some mucedinous growth."

Gen. XV, Acrospermum, Tode.—Perithecia elongated or clavate, carnose or somewhat of a horn-like consistency; sporidia filiform.

156. Acrospermum compressum, Tode. On the dried stems of various herbaceous plants. N. A. F., No. 1318.

Perithecia solitary or subcæspitose, sessile, club shaped, attenuated above and generally compressed, pale at first, finally dark or olive-black, shining, smooth at first, becoming longitudinally subsulcate, 1—3 millim. high; asci filiform, very long (130—150 x 3—6 μ), 8-spored; sporidia packed side by side, filiform, pale, yellowish-hyaline, 90—100 x ¾—1 μ; paraphyses slender.

157. Acrospermum viridulum, B. & C. Grev. IV, p. 161. On decayed herbaceous stems, So. Car. (Ravenel). On fallen pear leaves and on fallen hickory limb, New Jersey (Ellis). N. A. F., 857. Also on white oak leaves, Texas (Ravenel, 166).

Perithecia scattered, ovate, one third millim. high, abruptly contracted below into a short stipe-like base, obtuse above, greenish-cinereous, subfurfuraceous; asci linear, 150—200 x 5—6 μ; sporidia filiform, hyaline or slightly yellowish, about as long as the asci. The specimens on decaying hickory limb have the asci narrower (3½—4 μ), but do not appear to differ otherwise.

158. Acrospermum foliicolum, B. & C. Grev. IV, p. 161. Rav. Fung. Car. II, 65. On fallen leaves of elm and of *Celtis*, So. Car. Rav.

This in color and shape resembles *A. compressum*, but is shorter, mostly less than one millim. high, the asci also are longer (300—400 μ); perithecia slightly pulverulent.

159. ACROSPERMUM RAVENELII, B. & C. Grev. l. c. On leaves of *Cercis*, *Vitis* and *Fraxinus*. So. Car. (Ravenel).

"Clavatum breve; ascis elongatis; sporidiis filiformibus, minute, short, slightly attenuated downwards, at length somewhat clavate; asci long, linear, flexuous; sporidia long, filiform." We have not seen this.

160. ACROSPERMUM CORRUGATUM, Ell., Bull. Torr. Bot. Club, VIII, p. 124. *A. fultum*, Harkness, Bull. Cal. Acad. Sci., February, 1884, p. 47. On weather-beaten wood, Pleasant Valley, Utah (alt., 6,000 ft.), S. J. Harkness. On dead leaves of *Eucalyptus*, San Francisco, Cala., Dr. H. W. Harkness.

Perithecia wedge-shaped or liguliform, 1—1½ millim. high, supported by buttress-like portions which unite with the main body of the perithecium about half way up, strongly transversely-grooved on both sides above, black, compressed and truncate above, so that the apex is in shape like the edge of a chisel, the whole attached below to a brown, rooting mycelium; asci cylindric-clavate, tapering below to a long, slender pedicel, 400—500 x 8—9 μ, with long, slender paraphyses; sporidia linear, 300—350 x 1½—2 μ, separating into cylindrical, 3-septate joints which are 17—20 μ long.

Since writing the foregoing, we have received from Rev. A. B. Langlois specimens of what we take to be

161. NECTRIA VULGARIS, Speg., found on stumps of orange trees at Pointe a' la Hache, La.; perithecia densely gregarious or cæspitose, yellow-orange, becoming darker; sporidia oblong-elliptical, 1-septate, 10—13 x 3—4 μ.

INDEX TO GENERA AND SPECIES.

Acrospermum, Tode....Gen. XIV
Acrospermum compressum, Tode. 156
Acrospermum corrugatum, Ell.. 160
Acrospermum foliicolum, B. & C. 158
Acrospermum Ravenelii, B. & C. 159
Acrospermum viridulum, B. & C. 157
Byssonectria, Karst.....Gen. VIII
Byssonectria chrysocoma, Ck. & Hk.....117
Byssonectria fimeti, Cke.....116
Byssonectria rosella, Ck. & Hk.. 118
Calonectria 138
Claviceps, Tul .....Genus I
Claviceps microcephala (Wallr.). 2
Claviceps purpurea (Fr.) Tul.... 1
Cordyceps, Fries.....Genus II
Cordyceps acicularis, Rav..... 10
Cordyceps armeniaca, B. & C.... 4
Cordyceps capitata (Holmsk.)... 14
Cordyceps clavulata, Schw..... 7
Cordyceps entomorrhiza (Dicks). 3
Cordyceps Gryllotalpæ, M. A. C. 16
Cordyceps herculea, Schw..... 15
Cordyceps isarioides, M. A. C... 17
Cordyceps militaris (L.)..... 8
C'd'c'ps ophioglossoides (Ehrh.). 13
Cordyceps palustris, Berk. & Br. 5
Cordyceps Ravenelii, B. & C..... 9
Cordyceps Sphingum, Tul..... 12
C'd'c'ps stylophora, Berk. & Br.. 6
Cordyceps superficialis, Pk..... 11
Dialonectria, Sacc.....Genus IX
Dial'n'ct'a Brassicæ (Ell. & Sac.). 129
Dialonectria chlorinella, Cke....139
Dialonectria coccicola, E. & E..143
Dialonectria conigena (E. & E.)..135
Dialonectria Curtissii, Berk....138
Dialonectria depallens, Ck. & Hk. 131
Dialonectria depauperata (Cke).132
Dialonectria diploa, B. & C., var. diminuta.....141
Dialonectria dispersa (C. & E.)..125
Dialonectria episphæria (Tode.).136
Dialonectria erubescens (Desm.) Sacc.....140
Dialonectria Eucalypti, Ck. & Hk.127
Dialonectria filicina, Ck. & Hk..137
Dialonectria fibriseda.....144
Dialonectria fulfida. E. & E.....142
Dialonectria Galii, Pk. & Hk....133

Dialonectria mycetophila, Pk...120
Dialonectria Peponum (B & C.).134
Dialonectria Peziza (Tode.) Fr..122
Dial'n'ct'a sanguinea (Sibth.) Fr.121
Dialonectria squamulosa (Ell.)..128
Dialonectria thujana (Rehm.)...130
Dialonectria truncata (Ell.)....123
Dialonectria Umbellulariæ (Pl. & Hk.).....124
Dialonectria viticola (B. & C.)...126
Dialonectria vulpina, Cke.....119
Epichloe, Fries.... .....Genus III
Epichloe typhina (Pers.)..... 18
Hyponectria.....117
Hypocrea, Fries.....Genus IV
Hypocrea alutacea (Pers.)..... 20
Hypocrea apiculata, C. & P..... 47
Hypocrea armeniaca, B. & B.... 39
Hypocrea atramentosa, B. & C.. 55
Hypocrea chlorina, Cke..... 52
Hypocrea chlorospora, B. & C... 35
Hypocrea chromosperma, C & P. 36
Hypocrea citrina (Pers.)..... 38
Hypocrea citrinella, Ell 50
Hypocrea consimilis, Ell..... 46
Hypocrea corticiicola, E. & E... 44
Hypocrea cubispora, Ell. & Hol.. 37
Hypocrea digitata, Ell. & Hol... 49
Hypocrea gelatinosa (Tode.) ... 34
Hypocrea Hypoxylon, Pk..... 54
Hypocrea lactea, Fr..... 41
Hypocrea lati-zonata, Pk..... 32
Hypocrea lenta (Tode.) 22
Hypocrea minima, Sacc. & Ell.. 27
Hypocrea molliuscula, Schw.... 61
Hypocrea ochroleuca, B. & Rav.. 40
Hypocrea olivacea, C. & E..... 28
Hypocrea pallida, E. & E..... 43
Hypocrea papyracea, Ell. & Hol. 48
Hypocrea parasitans, B & C.... 57
Hypocrea patella, C. & P..... 26
Hypocrea Petersii, B. & C..... 19
Hypocrea phyllogena, Mont.... 53
Hypocrea polyporoidea, B. & C.. 45
Hypocrea Ravenelii, B..... 51
Hypocrea Richardsoni, Berk. & Mont..... 30
Hypocrea rigens, Fr..... 24
Hypocrea rufa (Pers.) 21
Hypocrea Schweinitzii, Fr..... 23
Hypocrea scutellæformis, B. & Rav..... 25
Hypocrea solenostoma, B. & Rav. 31
Hypocrea Stereorum, Schw..... 29
Hypocrea sterilior, Schw 59
Hypocrea sublobata, Schw..... 60
Hypocrea subviridis, B. & C.... 58
Hypocrea sulfurea, Schw..... 42
Hypocrea tuberiformis, B. & Rav. 56
Hypocrea viridirufa, B. & Rav.. 33
Hypocrella, Sacc..... 53
Hypomyces, Fries.....Genus V
Hypomyces apioporus, Cke..... 65
Hypomyces asterophorus, Tul... 76
Hypomyces aurantius, Pers..... 72
Hypomyces Banningii, Pk..... 66
Hypomyces boleticola, Schw.... 83
Hypomyces flavescens, Schw.... 80
Hypomyces Geoglossi, E. & E... 68
Hypomyces hyalinus, Schw..... 70
Hypomyces inguis, B. & C..... 78
Hypomyces lateritius, Schw.. 73
Hypomyces luteritius, Fr..... 71
Hypomyces ochraceus, Pers..... 75
Hypomyces rosaceus, Schw. ... 81
Hypomyces polyporinus, Pk..... 64
Hypomyces rosellus (A. & S). .. 74
Hypomyces Russellum, B. & C.... 79
Hypomyces tomentosus, Fr..... 77
Hypomyces transformans, Pk... 67
Hypomyces tubericola, Schw.... 82
Hypomyces VanBruntianus, Ger. 62
Hypomyces viridis (A. & S.).... 63
Hypomyces xylophilus, Pk..... 69
Melanospora, Ca.....Genus XIII
Melanospora lagenaria (Pers.)...155
Nectria, Fries.....Genus VII
Nectria Apocyni, Pk..... 106
Nectria atrofusca, Schw.....101
Nectria aureofulva, C. & E..... 99
Nectria aurigera, B. & Rav.....112
Nectria balsamea, C. & P.....111
Nectria Berolinensis, Sacc.....115
Nectria Canadensis, E. & E.....114
Nectria Celastri, Schw..... 97
Nectria cinnabarina, Tode..... 89
Nectria coccinea, Pers..... 92
Nectria Coryli, Fekl..... 87
Nectria cucurbitula, Curr....86, 103
Nectria dematiosa, Schw.....108
Nectria diploa, B. & C.....107
Nectria ditissima, Tul..... 95
Nectria inaurita, B. & Br..... 88
Nectria infusaria, Ck. & Hk....100
Nectria microsora, C. & E..... 98
Nectria muscivora, Berk.....105
Nectria nigrescens, Cke.....102
Nectria ochroleuca, Schw.....110
Nectria offuscata, B. & C..... 94
Nectria polythalama, Berk.....113
Nectria rhizogena, Cke.....104
Nectria Ribis, Tode..... 90
Nectria rubicarpa, Cke..... 91
Nectria Russellii, B. & C..... 93
Nectria tremelloides, E. & E....109
Nectria verrucosa, Schw..... 96
Nectria vulgaris, Speg.....161
Pleonectria, Sacc.....115
Polystigma, Persoon.....Genus VI
Polystigma Bumeliæ. Schw . 85
Polystigma rubrum (Pers.) DC.. 84
Sphærostilbe, Tul.....Genus XIII
Sphærostilbe cinnabarina, Tul..154
Sphærostilbe coccophila, Tul....152
Sphærostilbe flammea, Tul.....151
Sphærostilbe gracilipes, Tul.....153

The following omissions occur in the "Index to Genera and Species:"

Giberella, Sacc.....Genus XI
Giberella pulicaris (Fr.).....148
Giberella Saubinetii, Mont.... ..149
Hyponectria, Sacc.....Genus XII
Hyponectria Gossypii (Schw.)...150
Lasionectria, Sacc.....Genus X
Lasionectria lasioderma (Ell.)...146
Lasionectria poliosa, E. & E....145
Lasionectria Rexiana (Ell.).....147